November 6–11 1987 Vol 6 No 44 60p

POPULAR Computing WEEKLY

TWELVE POUNDS OF SUGAR

Amstrad Portable preview, p.4



PLUS BUDGET ST SOFTWARE SURVEY, p.14

ROCKET
RACK'IT
LICENSED TO THRILL AMERICANA SOFTWARE
M.A.D. MASTERTRONIC ADDED DIMENSION

MASTERTRONIC

TOP 30

Position	Title	Machine Type						
		Spectrum	C64	Amstrad	C16	Atari	MSX	BBC/ Electron
1.	Kikstart II		✓					
2.	Milk Race	✓	✓	✓		✓	✓	
3.	Rapid Fire	✓	✓					
4.	Motos	✓	✓	✓				
5.	Angleball	✓		✓				
6.	Flash Gordon	✓	✓	✓			✓	
7.	Feud	✓	✓	✓		✓	✓	
8.	Destructo	✓	✓	✓				
9.	Bosconian	✓		✓				
10.	Rigel's Revenge	✓		✓				
11.	Shard of Inovar	✓	✓	✓				
12.	Xevious	✓		✓				
13.	Ocean Conqueror	✓						
14.	On Cue		✓		✓	✓		
15.	Streaker	✓		✓			✓	
16.	Beach Head II	✓	✓	✓				
17.	Invasion	✓	✓	✓		✓	✓	
18.	Curse of Sherwood	✓	✓	✓				
19.	Rescue	✓						
20.	Tunnel Vision		✓					
21.	Eddie Kid	✓	✓				✓	✓
22.	180	✓	✓	✓		✓	✓	
23.	Ball Crazy	✓	✓	✓				
24.	Formula One Simulator	✓	✓	✓	✓		✓	
25.	Anarchy		✓					
26.	Draughts Genius	✓						
27.	Void Runner	✓	✓				✓	
28.	Storm	✓	✓	✓	✓	✓	✓	
29.	Omega One	✓						
30.	Stormbringer	✓		✓			✓	











RELEASES MASTERTRONIC NEW RELEASES MASTERTRONI

POPULAR Computing WEEKLY

Nov 6–11

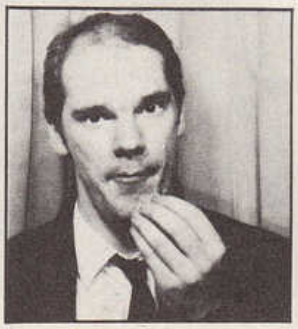
CONTENTS



News

4 News Desk Amstrad previews range of laptop PCs . . . Ocean's Christmas campaign . . . Codemasters and Micronet in telesoftware deal.

11 News Analysis Nikki Carvey peers into the mist surrounding last month's share deal between Virgin and Mastertronic and finds out what it might mean for the customer.



Features

14 Software: Budget ST product David Lester surveys the expanding range of low-price games for the ST . . .

18 Soundcheck: Mark Jenkins reports on a couple more Sonus products for the C64 – the RX Librarian and the Double Banked Librarian/Programmer.

20 Communications: Compunet buff Graham Edkins returns with a rundown of music programs on the Commodore database.

22 Hardware: Discovery 1200P modem – Steve Gold offers a detailed review of the latest from Discovery.



Programming

12 Peek and Poke Kenn Garroch comes to the rescue with more readers' questions answered.

27 Listings Mono Emulator Part 2, 3-D Graphics on the BBC.

Top: Amstrad PPC. Second: Kenn's last appearance as his old self. Above: Compunet. *Below:* Note a Penny More, Not a Penny Less.

Games

33 New Releases Your complete guide to all the programs released this week, including Mirrorsoft's biggie *Dark Castle,* Domark's *Not A Penny More, Not A Penny Less,* and Virgin's *Action Force.*

54 Ziggurat The horrors of electronic mail discussed by David Rawlinson.



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ABC

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Amstrad's baby...

LAST Wednesday heralded the unveiling of Amstrad's new baby – the Amstrad portable, weighing only 12 lbs and competitively priced at between £399 and £599.

The range consists of four models – the 512S single 720K 3½" drive at £399 + VAT, the 512D double 720K 3½" drive at £499 + VAT, the 640S single 720K 3½" drive + internal modem at £499 + VAT, and the 640D double 720K 3½" drive + internal modem which costs £699 + VAT.

Since the current portables which are marketed by Toshiba and Compaq sell for between £1000 and £2000, it is understandable why Amstrad is crowing about its breakthrough product.

Amstrad also claims that in addition to the unbeatable price, the portables have certain standard features that are offered as additional extras by other companies. These include a full-sized IBM AT type enhanced keyboard, five power sources – battery, A/C adaptor, expansion box, car cigarette lighter adaptor, and through the power supply of any Amstrad PC monitor.

The portable also incorporates a host of other features, such as 8086 16-bit processor, 8 MHz clock, integrated display adaptor fully compatible with MDA and CGA, and a 640 × 200 pixel supertwist LCD panel which supports all MDA and CGA graphics and text modes.



The Amstrad portable

Amstrad chairman Alan Sugar is optimistic that Amstrad will penetrate the mass market where portables currently occupy only 3 per cent. He believes Amstrad will succeed and was nonchalant about the effect the new product will have on other companies, saying: "We've given them 2 months to do something about it."

You may be wondering why Amstrad has already announced the portable range if they are not available in the shops until January. Sugar explained that this was because Amstrad wanted to launch the portable in Britain before it was launched at the Las Vegas Comdex Show in America this week.

Amstrad has been concerned in the past on how a new launch may affect other products in its range. Sugar said: "Our job is to sell what we have today, not what we will have tomorrow."

Last week, Sugar enthused that: "The Amstrad promise of providing high performance with quality goods at highly competitive prices will continue." Judging by its reception at the preview, the portable stands a fair chance of fulfilling this claim. All one can really say is 'Nice computer, Alan, shame about the video'.

Micronet sign-up telesoftware deal

CODEE Masters and Firebird have just signed a deal with Micronet to produce telesoftware.

This will enable Micronet subscribers to buy hot-off-the-press titles, 24 hours a day with as much as ¼ off the £1.99 RRP.

According to Micronet's PR person, David Rosenbaum, "Micronet is really acting like any other distributor with the money coming on a royalty basis. If nobody buys from us, we won't make anything."

At present there are no plans for Micronet to sign up any other budget software houses, but eventually it would like to have as many on-line as possible, depending on the outcomeof this deal.

The two companies involved are pleased with their new venture, seeing it as an ideal opportunity to increase sales. Firebird Silver Publisher Chris Smith enthused, "budget software is an impulse buy and telesoftware is the ideal environment for it. Priced as low as £1.50 on Micronet, Firebird's software is unbeatable."

Whether this is so remains to be seen. Meanwhile you can still nip down to your nearest newsagent and purchase yourself a copy of BMX Simulator and a Mars Bar.

Rack-it convert

HEWSON'S budget label, Rack-It, is to convert two of their original releases.

Anarchy, the puzzle game previously on the Commodore 64, will now be on the Spectrum and Amstrad. Similarly, *Ocean Conqueror*, the simulated submarine game, is due out on C64, Amstrad and MSX. The games will cost £2.99 and are distributed by Mastertronic.

DIARY DATES

NOVEMBER

13–15 November
Electron and BBC Micro User Show
New Horticultural Hall, London SW1
Details: Latest hardware and software across the Acorn range
Organiser: Database Exhibitions, 061-456 8383

21 November
Wales and West Computer Show
Central Hotel, Cardiff
Details: Regional computer show of particular interest to Dragon users
Tickets £1 adults, 50p children
Organiser: R & A J Preston, (0656) 880965

DECEMBER

12 December
Christmas ZX Microfair
New Horticultural Hall, London SW1
Details: Latest innovations for Sinclair users
Advanced tickets: £1.50 adults, £1 children
Tickets on the door: £2 adults, £1.50 children
Organiser: Mike Johnson, 01-801 9172

Prices, dates and venues of shows can vary, and you are therefore strongly advised to check with the show organiser before attending. We cannot accept responsibility for any alterations to show arrangements.

Gallup's No.1 Darling

CODE Masters was named by Gallup last week as the No.1 company for selling computer games in Britain.

Headed by the entrepreneurial brothers David and Richard Darling, Code Masters is boasting 12·8 per cent of the UK market, which is way ahead of its rivals.

David Darling said: "We have achieved this after many months of careful planning. Consumers recognise Code Masters as being top quality product at a realistic retail price, and our sales reflect this. We do not intend to become complacent though, and have an exciting new product to unveil that will sustain Code Masters' dominance of the charts well into 1988."

Not everyone would agree with this. Frank Herman, chairman of Mastertronic commented, "Empty vessels make the most noise."

He declined to expand on the issue but it is well known that Mastertronic does not think highly of Gallup's market analysis at present.

Meanwhile, Code Masters is set for Christmas success with the recent release of the new Grand Prix simulator game. It is hoped that it will match the success of Code Masters' *BMX Simulator* which is claimed to have sold 200,000 copies.



David and Richard Darling

The Dataphone low-cost demon

DATAPHONE Ltd has just released a new low-cost modem, the Demon 2, which will cost under £80.

You can use the modem with any computer, providing it has a suitable interface and software and is fitted with a 25-pin D socket for connection to a computer RS232/423 port. In addition, it has a full three wire telephone circuit and comes equipped with an internal power supply, fitted mains plug and a three metre telephone cable which connects to standard sockets.

Demon 2 has a diverse range of features, some of which are: full computer control; auto dial and auto answer. It will also handle 1200/75 and 300/300 baud rates, 1200/1200 half duplex for bulk loading, and is able to automatically select the correct baud rate for both sending and receiving.

Having received full BABT approval for connection to the telephone system, Demon 2 is available now. A user-manual is supplied with each machine and Dataphone will provide a full support service.

For those you you wanting to log on to Prestel or Telecom Gold with one key stroke, software is available for most computers under £50.



Demon 2

Whose ditto?

A ROW has erupted between Robtek and Microdeal over the *PC Ditto* emulator for the ST.

In a recent advert in *Popular Computing Weekly*, Microdeal was offering *PC Ditto* for £49.95 whereas Robtek is selling it for £89.

Mike Segrue, marketing manager at Robtek said that an exclusive contract with America's Avantgarde who make the product, and that Microdeal's *PC Ditto* will not work on British machines.

In response John Symes at Microdeal stated that they had imported a large number of *PC Ditto* directly from Avantgarde and these worked perfectly well on British equipment. He commented that Robtek was 'just trying to monopolise the business at exhorbitant prices'.

Festive plans

OCEAN Software last week announced their forthcoming plans for the festive season.

Currently at No. 1 with *Renegade*, Ocean is hoping that the ten new games, being launched in time for Christmas, will prove equally popular.

Set for release this month are adaptions of arcade hits, *Psycho Soldier*, *Combat School* and *Gryzor*, and also *Match Day II*, *Phantom Club* and *Flashpoint* which are based on original concepts.

Flashpoint is particularly unusual since it is a strategy 'board' game, requiring quick reactions and maximum concentration.

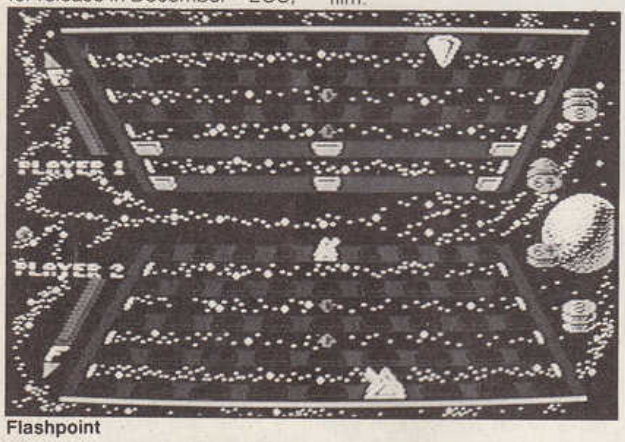
It is a two player game in which you must outwit your opponent, using sneaky strategies of attack and defence whilst being continually aware of what the other player is up to.

There are also four games set for release in December – *ECO*, *Mad Ball*, *The Rastan Saga* and *Basket Master*.

Of these, *ECO* detracts somewhat from the average game plot. Beginning life as an insect, you have to fight off the higher forms of life in order to progress to humanoid. Fully animated vector graphics on a 360 degree scrolling landscape in 3D perspective are part and parcel of the game, intended to add authenticity.

Whilst Ocean was pleased to reveal its new titles, it was most excited about a game that will miss the Christmas stocking – *Platoon*.

A team from Ocean has already spent 5 months working on *Platoon* and is presently 'touching up the graphics' so that the game will be ready for a January release. Understandably Ocean are hoping the game will be as big a hit as the film.



Flashpoint

Christmas treat

SPECTRUM owners are to receive an extra treat this Christmas with next month's unveiling of the Plus D by Miles Gordon Technology.

The Plus D is a disc and printer interface that will upgrade older Spectrums at the low cost of £49.95, or £129.95 together with a 3.5" drive with a capacity of 780K.

Among the diverse range of features it offers are: a snapshot button for instant saving of all 48K and 128K cassette programs to disc; fast loading – up to 780K per drive; simple syntax for beginners and sophisticated facilities for avanced users.

Whilst Designer Bruce Gordon has based the Plus D on the Disciple, the Plus D is smaller, coming in a 10cm × 10cm metal case. The network and joystick ports have been dropped, although you can still use a joystick interface.

Miles Gordon Technology believe that the Plus D will be the answer to many Spectrum owners' prayers. If you are one of the non-committed, however, *Popular Computing Weekly* will be reviewing the product soon.



SOFTWARE HOTLINES

Arcana Software Design, known for their work in the 8-bit field, are moving into the ST/Amiga market with *Mars Cops* and *Power Play* (entertaining quiz challenge game).

The picture is from *Mars Cops*, which has you hurtling down canyons, dodging rock outcroppings which loom up in horrifying 3-D, chasing UFO's. If you fail to stop the blighters at this stage then the fight moves stage into space.

It's all reminiscent of Gerry Anderson's UFO series from many, many years ago. With surprisingly good animation (how many Amiga games can you say that about?) this is one to look out for.

Winner of the 'game most likely to be played by the Lord Chancellor' award goes to *Garrison*, on the Amiga. The programmers are German and the game is going to be distributed here by **Simply Megaware**. But not for very long.

As soon as **US Gold** see it there'll be squadrons of lawyers flying out of Birmingham. Why? Because *Garrison* is *Gauntlet*. From the superb music, to the sampled sound effects, smooth scrolling (it's not fast but that's a minor quibble) and fabby graphics, this is *Gauntlet* in almost every respect. Buy it now while you can (full review next week, by the way).

Actually, if **US Gold** know what they're about they'll simply buy the program lock, stock and barrel, and affix their name to it.

Goodness me. Two calls about last week's Hotlines, soon to be renamed Scurrilous Gossiplines, by Thursday. A man not unconnected with the programmer responsible for *Flying Spark* on the C64 was at pains to assure me that not only was the programmer brilliant, but so was the game. Well, how could I possibly doubt it? (You cynic, Evans. Ed.)

Bruce Jordan of **Novagen** has apparently been fending off the crazed hordes of ST owners by the truckload since last week's column. The object of all the interest is, of course, the best thing at the PCW show, *Backlash*.

Well, the pre-production version was pretty damn good, so roll on the finished product. An interesting point is that Paul Woakes, the programmer, has coaxed 450k out of a single sided disc to enable more features to be squashed in.

Following our Frank's pulverising of porky Joe Bugner t'other week, and excited talk of a Bruno-Tyson (mis)match, what's the betting that either *Frank Bruno's Boxing* reappears or there's a new Bruno boxing game?

Pssst. Completely off the record, and in the strictest of confidence, there are mutterings that **Elite** are going to pull out of computer software completely. They weren't exactly making a lot of noise at the PCW show, were they?

Superior-Baconsoft have released another set of 40 screens for Repton 3 – the Boulderdash variant. Whatever next I wonder? Repton eats his dinner? Repton goes down the pub?

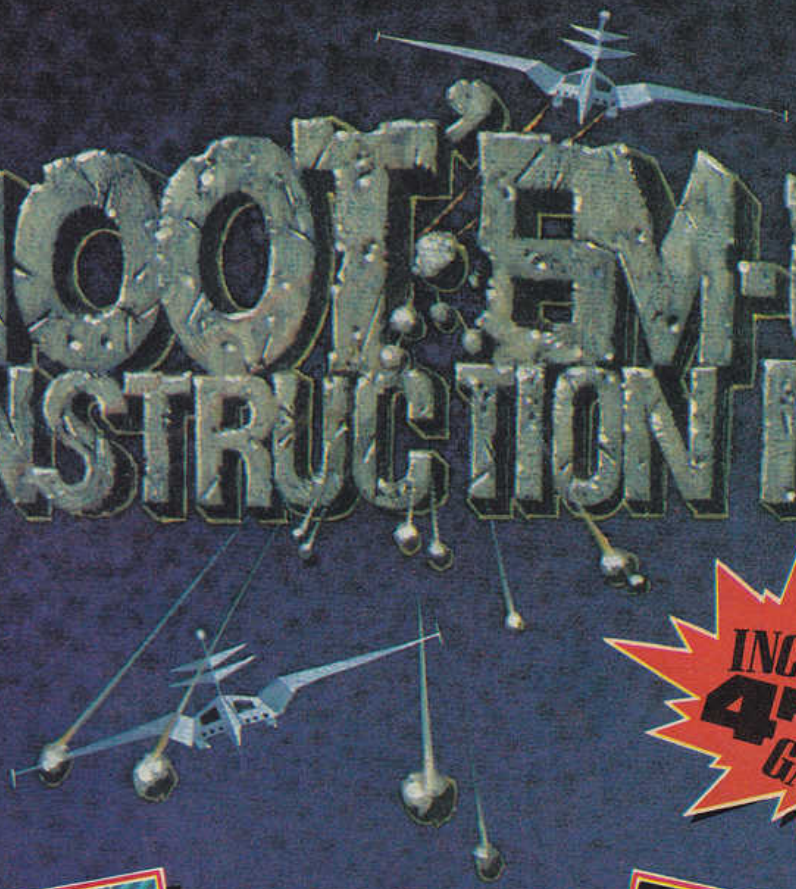
Hold the front page, hold the front page! Well, the colour page anyway. Guess what's just plopped into my lap? Only the ST version of *Defender of the Crown!* Oh, heaven. Righto, I'm off home with it. See you next week folks.

Duncan Evans

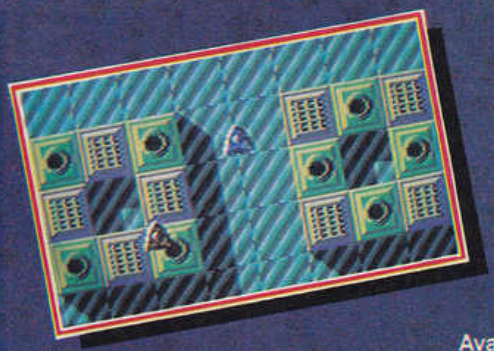
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Programs

Technical editor Duncan Evans relies on you for the programs section. It needn't be that machine code masterpiece that NASA was promising you vast sums for, what we're looking out for is handy routines, utilities, anything that you've concocted that makes your life easier as a programmer that you'd like to pass on to others.

Don't make your programs too long, please – it's best if we can print the full listing in one week, and a four part listing is probably the largest we can accept. If they're very short, then so much the better, they'll fit neatly into our Bytes and Pieces page.

Features

We're also particularly interested in articles about programming, which should be sent to Christina Erskine. If you think you could explain technical areas of computing to a wider audience then do let us know.

We also welcome articles on any aspect of home computing, although we cannot feasibly accept anything longer than 2000 words. It's worth checking by phone or letter first that your piece will be suitable, but we're open to all ideas.

Money no object?

If it's not the money you're interested in so much as simply having your say, the Ziggurat slot is where anyone can get up on a soap box and air their opinions. Your article should be 600–650 words long. We pay £15 per Ziggurat published.

For even less money, we'd like to hear your views, comments and opinions on our Letters page, and our columnists are always on the look-out for hints and tips and comments on their own areas of the magazine.

Mark Jenkins welcomes correspondence of a musical nature for Soundcheck, Martin Bryant is interested in any queries or views regarding computer chess, and our communications correspondents will be happy to answer questions about modems and networks (mark your envelope 'Comms').

Any technical or programming problems you're encountering can be addressed to Kenn Garroch. Kenn tries to help as many people as possible in Peek and Poke, but cannot undertake to give personal replies.



How to submit

For features, it is almost always better if you write or telephone first to discuss your ideas with us. Your articles should be typed or word processed, preferably in double spacing, using one side of the paper only.

Please don't write more than 2000 words for an article. Program notes should explain what your program achieves and how it works, but, again, please keep them concise.

Payment

Listings will be paid at a rate of £25 per published page, Bytes and Pieces at £10 each. For feature articles, we pay £40 per published page, which is about 800 words.

Your payment should arrive six weeks after publication date.

Where to send them

All submissions should be sent to *Popular Computing Weekly*, 3rd Floor, Greencoat House, Francis Street, London SW1P 1DG. If you mark which department your letter is destined for on the envelope it will help us process them much more quickly.

We will make every attempt to acknowledge receipt of your submission.

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Light Pen — Tape	A006	£19.95
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256K Ram	A008	£75.00
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LETTERS

Confession

Over the past few weeks I've been watching the debate in this magazine and others about violence in software, and the general hysteria following in the wake of the Hungerford killings.

It seems to me that, while the disgust at all things violent expounded by so many people is in most respects laudable, they may well be missing the point entirely. Violent software, like violent films, books, television programmes and so forth, is a symptom, not a cause.

To bring things onto a personal level, I, like so many others, work in an office, spending most of my time in front of a PC, entering and adjusting data. My work is to a large extent boring in the extreme, the software package (*Symphony v2.00*) is in my opinion quirky, if not downright uncooperative, and the data itself holds little meaning or interest for me.

To get to work I have to fight my way through the London Underground and its crowd of commuters identical in many respects to myself, and to get home I must again face this human sardine tin.

To sum up, my life at work is to a great extent frustrating, boring and unsatisfying and I arrive home at the end of each day full of pent-up tension and aggression, which I take out on my long-suffering girlfriend by moaning on about the people, the job et al until I have relaxed to an extent.

Another way that I relieve this aggression (aha! the confession) is to go and pound the life out of a large number of innocent aliens/enemies/ball-bearings or whatever, on my trusty home micro.

Evidently, it is not the software which makes me aggressive, but quite the opposite, in that the software acts as a punchbag, if you will, which absorbs my violence without suffering any long-term side-effects, like death, that a live human might.

Books and films are in some ways a different case, because of the way that they tend to lead to imitation ("Be like Rambo! Buy the Acme X-treem-lee Nastee Huge Big Sharp Killing Macho Knife" etc ad nauseam). Tell me that I unconsciously want to be like the little spacecraft in FireTrak or whatever, on the other hand, and I'm more likely to laugh than to buy.

The true fault lies in the society which leads us to build these tensions and aggressive tendencies in the first place, a society based on pressure and aggressive competition, and one in which to a great extent, the more ruthless you are, the more successful you become.

Perhaps, rather than trying to attack the symptoms and merely putting yet more restraints and pressures on the populace, we should be trying to change that attitudes and approach of our society with a view to reducing this pressure?

Ben Rapp,
London NW6

Sinister 2

I was interested to read the letter from George Godman in your issue of October 23/29th.

My circumstances and views are very similar to his. I am a little younger than he is and I have been doing the puzzle longer.

How right he is to say that the words "due to overwhelming demand" have a "sinister ring".

I am afraid he is also right when he says that these days the magazine has less to offer to people like George and me.

If, in the process of fitting the puzzle into a new format, you spoil it, there will be little point in my continuing to take the magazine!

Granted that you want to hear the ideas of your readers about a new puzzle "format" – why did you not simply ask them in one small paragraph, to write in and continue to publish the weekly puzzle in the meantime?

Your answer to George suggests to a nasty suspicious mind like mine that really all of this arises from a dispute with your compiler about his fee!

Phil Amey
Esher, Surrey

Beg, beg

Please ,please, please bring back the puzzle section as it was – I'm suffering terrible withdrawal symptons every Sunday morning (the time for my once weekly brainstorming session).

Steve Wood
Wombourne, Staffs WV5

We are in the process of organising this.
Readers – stay tuned!

Sic transit

I'm writing to you with my experience in dealing with a repair firm which advertises in your magazine.

I paid £22 for the repair of a graphical fault on a C64. When the machine was returned it would no longer load a thing and crashed while I was writing a basic routine.

I sent the machine back and told the company of the faults. I heard nothing for two weeks so I rang and was told that the machine was fine when it left them – so any damage must have occurred in transit. They would however repair it for a further £12.

I have so far wasted £22 with this firm, only to receive a C64 in worse condition than I thought possible.

Mr. A. Elliott
Maulden, Beds.

PS. Can anyone suggest a reliable firm to repair my machine?

Old fashioned

Magazines depend a great deal upon advertising revenue; mail order companies depend upon a wide readership; and potential customers depend upon the honesty and reliability of both publisher and suppliers.

When one of the links in the chain is damaged, it diminishes us all. Here then is (yet another) cautionary tale of mail order mismanagement.

Wishing to purchase some blank discs and a printer cable, I checked through back issues of Popular Computing Weekly for a regular (and therefore I reasoned reputable and firmly established) advertiser.

One particular company seemed to fit the bill, so I placed an order over the phone and paid by credit card. A few days later a package arrived with an invoice.

The invoice was for the goods I had ordered, while the package contained ten discs and a library case less than I had order. I phoned the company shortly afterwards and explained the dilemma to an extremely sympathetic lady.

A little over two weeks later, and four or five phone calls to the company's answerphone asking about the delay, I received a phone call from the same helpful lady asking what it was I was missing. She promised to sort it out promptly.

It has now been a month since that last call and there's still no sign of any of the missing discs.

I realise that there is almost nothing I can do. Once a firm has a customer's credit card number they need only supply the goods they wish to. My statement shows that I have been charged for the full amount of the order. I guess I'm lucky the package wasn't 100 discs short.

It seems a pity that old fashioned concepts like trust and integrity matter so little in today's business environment.

M. L. Turner
Birmingham B13

It is not Popular's policy to mention companies by name, so we have edited the above two letters accordingly. Readers may rest assured though that the companies involved have been contacted, are looking into these matters, and will, hopefully, get back to us on these issues.



"Is that a portable computer in your pocket, or are you just pleased to see me?"

The master and the maiden

Nikki Carvey sounds out the implications of the new Virgin-Mastertronic relationship.

After six months of talks, Virgin eventually acquired a 45 per cent stake in Mastertronic at a rumoured cost of £4m.

Whilst maintaining that it is still a minority shareholder, leaving Mastertronic under autonomous control, one can't help wondering in which direction Virgin is hoping to manoeuvre Frank Herman and Co.

Paul Latham of Virgin Publishing denied that Virgin was going to try and use Mastertronic for its own ends. He stressed, "The relationship is not only of control, but one of participation."

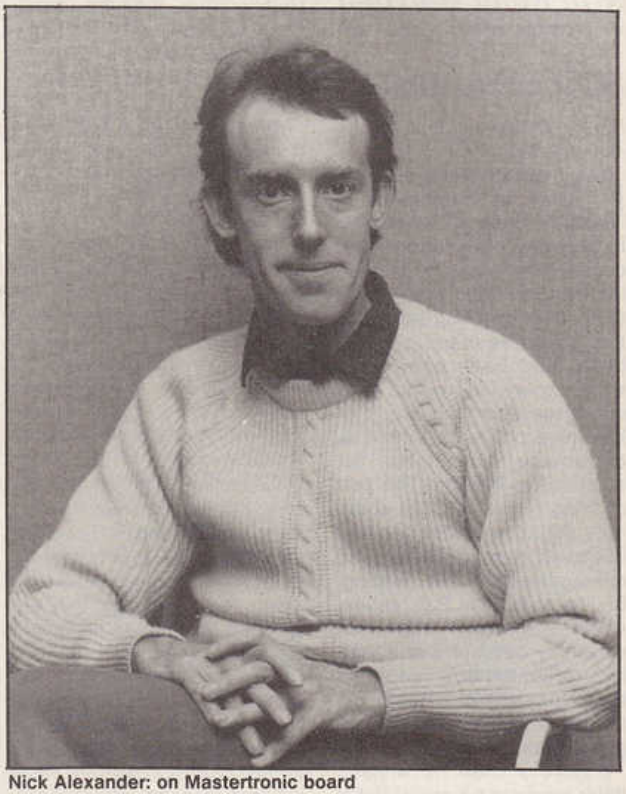
Frank Herman, chairman of Mastertronic, was also of this opinion, saying, "We are planning to carry on doing what we are already doing."

Some of this 'doing' will mean the continued expansion of the U.S. market. In terms of budget software Frank hopes that Mastertronic will soon become the No. 1 budget house in the States. He is also confident that Arcadia, a subsidiary of Mastertronic, has a lot to gain from America. "Arcadia is now more of a U.S. company since the bias of business has gone to the other side of the Atlantic."

Latham believes that Mastertronic wants to develop more business in the States because the market is more stable, more adult-orientated and more profitable, with the margins under less pressure.

Since Mastertronic is so heavily involved in the American market, it is thought that it will float on the U.S. stock exchange rather than in Britain. Herman, however, denied this saying that there was a 'strong possibility' of it going to the British USM.

At present, both parties are evasive about their exact plans for the future. Having failed in the past with the 'Rabbit' budget label, Virgin has no plans to produce its own budget software range.



Nick Alexander: on Mastertronic board



Frank Herman of Mastertronics

Instead it is likely to pursue a licensing agreement with Mastertronic, whereby original Virgin games, such as *Dan Dare*, will be published as budget titles by Mastertronic.

Whilst Virgin will remain clear of the budget market, Mastertronic will be further expanding its full-price software label, Melbourne House.

Herman emphasised, however, that these plans would have materialised anyway, they were not the result of the Virgin deal.

What is a result of the deal, though, is Nick Alexander's 'advisory' appointment to Mastertronic's board. As such he is in a good position to influence Mastertronic in the direction he wishes to go.

One way in which Virgin may lead Mastertronic is towards the development of new technology software media, such as CD ROM and interactive video – areas in which Virgin is already interested. Whilst Herman conceded that Mastertronic was 'looking particularly closely' at these, he would not comment on whether any specific deal had been settled with Virgin.

In spite of what both Virgin and Mastertronic say, it does seem that in the long term the deal will produce some obvious changes within the software business. For the present, though, Herman assures us that the consumer will notice no difference and that business post-Virgin will go on the same as before.



with Kenn Garroch

Car compatible?

Cpl W A Skinner, Royal Engineers, writes:

Q I am interested in the use of computers in the car but I am unable to find any publications that cover this subject. I have leafed through magazines that cover robotics (in terms that are three miles over my head) and been confronted with expensive robots that serve tea and sing the 'Yellow Rose of Texas' which is, of course, unsuitable for what I have in mind. The sort of thing I have thought about may sound a bit far fetched however, here goes: engine management, fault finding, tuning speed, M.P.G. ratios, voice-activated response, proximity detectors and lastly, the computer's response to aerodynamic effects on the car, to adjust spoiler angles for example.

I have a CBM 64 which I think may not be suitable for this purpose. Could you please help me with this subject, whether it is possible, practical, and the computer suitable?

A Some of the things you want to do are reasonably practical, others may prove a little difficult to implement. The basic idea can be broken down into three sections; getting information from the car into the computer, processing the data, and sending out controlled responses back to the car. The first and the last involve some kind of interfacing and, as you say, the C64 is not really suitable. You need a machine that is easily interfaced to the outside world, uses very little power, and is capable of quite complex processing. This is quite a difficult niche to fill as there are computers that have some of the attributes but not others.

A major problem is one of the computer's display. Although it is easily possible to get portable TVs that work from a car batteries, they do use a considerable amount of power and are fairly fragile. An LCD (Liquid Crystal Display – as used in watches) display would be ideal and as most computers that use these are battery powered and portable, one of these would do. Unfortunately, they are usually more expensive that the standard home micro although there are quite a number around. Unfortunately, since I have not used them all, it is difficult to recommend one. One of the Kyosera machines would probably do – say the NEC 8201 or the Tandy portable.

Interfacing is the next problem as most portables do not have user ports as on the 64 or BBC etc. They do have some of the system lines (at least the NEC does) so it should be reasonably easy to make up an interface board that runs some kind of VIA (Versatile Interface Adapter) chip.

Accessing this should be pretty straightforward from Basic using IN and OUT and this then gives the facility to turn outputs on and off, and read inputs to see whether they are on or off. An ADC (Analogue to Digital Converter) can be used to read incoming voltages, and a DAC (Digital to Analogue Converter) used to send out varying control voltages. Such things as temperature, pressure, and proximity sensors, and flow meters can be attached to the ADC while the DAC can be used to alter the timing and hence the tuning of the engine. Speech response is probably beyond the direct processing capabilities of most small portables, and the mathematics of aerodynamics is pretty complicated and also probably beyond its capacity. However, it should be possible to perform simple control and monitoring of the engine. As far as I know, there isn't any literature on the subject (readers please correct this if possible?) so the best place to start would be to get a reasonable background in digital electronics and construction, not a terribly difficult subject once you get the basic ideas.

A good place to start is to peruse as many electronics and computer mags as possible looking for ideas that can be adapted to your purposes. Experiment with some interfacing to your 64 (see a series of articles in *Popular* in the near future for help on this) and get to know what can and can't be done. Electronics catalogues can be a great help with ideas on what chips and sensors are available, particularly Maplin and Radio Spares (RS). After messing around with the above suggestions, you may have a lot more idea of what is available and be able to be a lot more specific about what you need to know – although once you get the basic idea, you'll find that it is quite straightforward.

I'm sorry that I can't be a lot more helpful and suggest some concrete ways of doing what you require as I lack space, and to explain in full would take lots of it. Don't hesitate to write to me with more detailed questions if you get stuck on a particular thing. There is no real reason why a computer cannot do any of the things you suggest, the main obstacle will probably be money.

In from the cold

D A John Wase, of Bishampton, Worcs, writes:

Q I have a problem with a Spectrum +2. When starting from cold, 48K mode, cap N, M and symbol shift A won't work – very irritating as the latter accesses Tasword's main menu in 128K mode, all is well but if you load up Tasword +2 (The 128K version), cursor right takes 5 mins to warm up, graphics 7–10 mins, and, most irritating of all, cursor up takes ¾ of an hour. Tasword +2 uses one of the interrupt modes to scan the keyboard. I read recently that this is a new name to cover and "I don't know how it works" problem. Do you or any of your readers know exactly what causes it and how to cure it? By the way, cold weather makes it worse.

A This is a strange one, is it possible that one row of the keyboard is playing up? Since the temperature affects the problem, it appears to be a hardware fault ie, the keyboard switches. As far as I know, the Spectrum +2 uses membranes under the keytops and it is possible that they are damaged or even damp. Another possibility is a bad connection between the main printed circuit board and the keyboard, or a dry joint somewhere. However, since it works in 128K mode, this looks unlikely. It may be that the software contributes to the problem by reading the keyboard in different fashions – a faster scan might mshow the probjem up whereas normal operation is slow. These are just guesses and basically, I have no idea. Perhaps our readers can help?

No swap

Peter Erskine, of Colchester, Essex, writes:

Q In Peek and Poke issue No 38, Vol 6, you suggested to an Amiga sysop that he could swap files between the Amiga and the ST using the RS232.

I have just bought an ST and intended to use my RS232 printer with it – the Atari handbook claims the RS232 port to be "industry standard".

It turns out they are lying . . . it is impossible to drive a printer with it. The reason is that the ST's CTS line requires to be rattled by the data terminal equipment before the ST will transmit each byte. Sending CTS high is not enough.

So, I doubt whether getting the ST to converse with the Amiga is all that easy?

I have no idea what rattling a line means. Any idea on frequency, number of reversals needed?

A First of all, the industry standard for RS232 only defines the lines, plugs and voltages, and not the format of the data that is sent along them. However, you are right in that the CTS line does not work correctly. The rattling simply means that the CTS line is changed after every byte transmitted, most printers hold it high while the buffer is full and then send it low when data is acceptable ie, there is room in the buffer for it (others may do it the other way around). If you ignore the CTs and RTS lines then communication is possible – I can testify to this as I regularly move data from my Mac to ST and back without a

hitch. The only drawback is that the speed must be kept down to a level where the Mac's buffer never gets full (300 baud is acceptable).

One answer is to tell the ST to ignore RTS/CTS and use no handshaking. This is the default on power up but is alterable on the RS232 config control panel desk accessory. Your printer should work in this mode but will have to use a pretty slow communication rate so that the buffer does not overflow.

The best, and most elegant, solution is to patch the operating system so that CTS operates correctly. This is not as difficult as it may seem if you have an assembler. CTS activates an MFP interrupt which in turn operates a service routine. Fortunately, the CTS vector is easily changed.

As far as I can see, what is needed is a routine that senses when the CTS line goes hi and stops transmission until it goes low again (or the other way about depending on the printer). The CTS interrupt is on bit 2 of theMFP i/o port and is read at location $FFFFFA01.

The RS232 transmitter software works in two ways, the first of which appears to be for single bytes and ignores CTS, the sconbd is used when sending buffers full of information eg, when selecting print screen from the menu. In this mode, when a byte has been transmitted, an interrupt occurs, which activates the TX buffer empty routine. Here the RTS/CTS mode is checked, and if active, then the CTs interrupt is used to send each byte ie, the CTS input clocks each byte out ie, it has to be rattled (this is where the fault is). The XON/XOFF protocol flag is then checked and is active, is used. If neither of these are on then the buffer is checked to see if there are bytes to send and if there are, a byte is transmitted.

What we want the routine to do is very similar apart from the RTS/CTS check. Instead of using this routine to send a byte when the CTS is rattled, all CTS should do is stop transmission if it is high. This means altering the transmit routine to check the CTS interrupt line which is on the MFP i/o port. The CTS interrupt itself is disabled by redirecting it to an interrupt reset command and then RTE. So, how is this done in practice?

Since XON/XOFF and CTS//RTS are unlikely to be used at the same time, the new routine can ignore the former. The 'forec' which holds the pointers to the data can be found with the XB10S 14 trap, and the interrupt vectors at $128 (TX buf empty) and $108 (CTS) can be diverted. The routine for the transmitter interrupt is now shown in Fig 1, the CTS routine in Fig 2, and the installation routine in Fig 3. Note that one the installation has been run, the program remains in memory so that the interrupts have access to it. If your CTS line works the other way around, change the wait section of TRX1 to be TXRIW instead of beq. I was unable to check the routine with software other than the print screen routine but, as long as other software uses legal ST calls it should work.

```
TRXI    movem.l d2/a0-a2,-(sp)  Stack registers
        move.l  rsiorec,a0      Address of RS232 iorec
        lea.l   $FFFFFA01,a1    MFP pointer
        btst    #1,32(a0)       RTS/CTS mode?
        beq     TRXIS           Yes skip CTS check
TRXIW   btst.b  #2,$FFFFFA01    Is CTS high?
        beq     TRXIW           Yes then wait till low
TRXIS   move.b  44(a1),29(a0)   Save TX stat reg
        move    20(a0),d2       Get head index
        cmp     22(a0),d2       Compare against tail
        beq     TRXIE           Buffer empty end
        addq    #1,d2           Tail index+1
        cmp     18(a0),d2       Same as buffer size?
        bcs     TRXIN           No
        moveq.l #0,d2           Reset pointer
TRXIN   move.l  14(a0),a2       Pointer to send buffer
        move.b  0(a2,d2),46(a1) Byte to MFP TX reg
        move    d2,20(a0)       Save new head index
TRXIE   bclr    #2,14(a1)       Clear interrupt service bit
        movem.l (sp)+,d2/a0-a2
        rte
```

Fig 1, the new transmit routine.

```
CTSIR   bclr    #2,$FFFFFA11    Clear interrupt service bit
        rte                     And exit
```

Fig 2 the CTS handler.

```
start   move.l  a7,a5           Header code
        move.l  #USTK,a7        That sets aside space
        move.l  4(a5),a5        For the program
        move.l  $C(a5),d0
        add.l   $14(a5),d0
        add.l   $1C(a5),d0
        add.l   #$100,d0
        move.l  d0,prlen
        move.l  d0,-(sp)
        move.l  a5,-(sp)
        move    #0,-(sp)
        move    #$4A,-(sp)
        trap    #1
        add.l   #12,sp
        bra     GO

prlen   ds.l    1               Length of program store
rsiorec ds.l    1               Pointer to rsiorec

GO      clr     -(sp)           Select RS232 iorec
        move    #14,-(sp)       XBIOS 14
        trap    #14             Call XBIOS
        addq.l  #4,sp           Correct stack
        move.l  d0,rsiorec      Store iorec pointer
        bsr     super
        move.l  #TRXI,$128      Set up new TX
        move.l  #CTSIR,$108     And new CTS
        bsr     usuper
        move    #0,-(sp)        Return no error
        move.l  prlen,-(sp)     Save size of prog
        move    #$31,-(sp)      Keep process in memory
        trap    #1              And terminate it.

{{Place the TXRI and CTSIR routines here}}

super   move.l  #0,-(sp)
        move    $20,-(sp)       Go into supervisor mode
        trap    #1
        addq.l  #6,sp
        move.l  d0,stksve
        rts

stksve  ds.l    1

usuper  move.l  stksve,-(sp)
        move    $20,-(sp)       To user mode
        trap    #1
        addq.l  #6,sp
        rts

        ds.l    256
USTK    ds.l    1
        even
        end
```

Fig 3 the installer.

Being STingy

David Lester reviews the development of budget software on the ST which now permeates the market, and the cheaper range of products now available.

Budget software has been around now for exactly three years on 8-bit computers, and has grown dramatically ever since it hit the market. Gallup (the independent body which compiles the charts each week) now estimate that six in every ten computer games sold are budget titles (less than a fiver). The ST software market in the UK is just opening up. It seems about to explode, as most of the major players in the 8-bit market find sales starting to drop off as users upgrade. But where does the concept of budget software leave the 16-bit market?

Budget is based upon the "pile it high and sell it cheap" philosophy – which relies on low costs. These rest primarily upon the cheap cost of cassettes: most firms pay about 50p per tape to be duplicated and have artwork produced. Unfortunately, discs cost rather more than that to produce, at least currently, and require more expensive packaging. Furthermore, the 8-bit budget software houses rely upon high unit volumes, so that their total income from each game is as high as it would have been had they charged more for the game, but sold fewer copies of it. Until now, there have not been enough Atari STs around to make such a proposition viable.

Another spanner in the works is that to some extent the marketing is very different. Budget software sells as an impulse purchase, primarily to young schoolboys whose income is normally just pocket money. But the purchasers of Atari STs are typically older, and have substantially higher incomes. So the software houses have argued that price is a much less important factor in the ST market: if an ST owner likes a product, he can afford to simply go out and purchase it, regardless of cost.

A further problem with starting ST budget software is finding the programmers. One major software house very active in the 8-bit field explained that they would not be bringing much out for the Atari ST yet, since there were not enough programmers around capable of producing the goods. Luckily not all software houses find this insurmountable.

A more real problem exists in that ST software requires more programming than 8-bit software – so the programmers want more recompense for their efforts. This is simply due to the fact that the facilities are so much better that the punters expect far more for their money, principally in terms of graphics and sound, but also in terms of depth. Hence development takes longer, and costs more: one of the reasons why you won't see ST games on sale for £1.99 just yet!

This Autumn, though, the situation is changing. Trade sources report an estimated shortfall of Atari STs of about 200,000 units (a lot of computers in anyone's eyes). This shortage speaks volumes about quantities of STs which are in fact selling, and any ST dealer will tell you just how fast the machines are shifting. And all these new purchasers will want software. Enter the budget software houses, as future sales volumes should support at least some budget titles.

But budget software for the ST will not be £2.99 tapes; the problems and different costs involved mean that a higher price is inevitable and the market leaders have picked £9.95 as the 16-bit budget level. Anco has been selling titles at this price for some months, presumably with some success as they continue to churn out new games. But some software houses are also toying with £12.95 as a budget price. Which is reminiscent of the price differences among the first budget houses back in 1984 (£1.99, £2,50, £2.99, £3.95 and even £4.95 were all tried before the market settled back to just two common price levels). With the sheer might of Mastertronic and Code Masters, the two budget software leaders behind £9.95, though, this looks set to become the principal 16-bit price point.



Chopper: budget software

The first company to consider in any budget article can only be Mastertronic, who, along with Atlantis and the now extinct Ace, pioneered the new philosophy and reached rich rewards. Not slow to spot rising trends, they have already brought out their first ST products, namely *Ninja Mission* and *Outcast*. This Autumn they will be releasing quite a few more, although most of these will apparently be on the newly relaunched Melbourne House range, retailing at £19.95.

Ninja Mission won no awards (to my knowledge), but was good run-of-the-mill hack-and-kill martial arts fare. *Outcast*, a more recent release, is more stylish – and likely to earn Mastertronic a reputation as a force to be reckoned with in the ST world. The game is extremely impressive, and at £9.95 is better value than many games currently selling at twice its price. It is a variation upon the *Star Glider*/space age 3D flight simulator theme, with a very strong shoot 'em up emphasis, the graphics are well-designed, smooth, colourful and fast, and the game is nicely finished with an excellent, atmospheric sound-track. (Furthermore, the introductory blurb is more original than usual!)

An imminent release from the same stable is *Chopper X*. This is not the combat flight simulator a'la *Gunship* which I expected, but rather a slick vertically scrolling shoot 'em up with a remarkable resemblance to Vortex's *Tornado Low Level*. You are cast as the usual hero, the only difference being that you are actually expected to commit suicide for your country, taking as many of the enemy with you! (With friends like that . . .)

You control a nicely designed chopper, fitted with the latest . . . as per usual – yes, you've guessed it – gun! Your mission is to attack an enemy base, destroying all armour in sight, but they don't mind if you happen to get a few cars as well, while you're there.

The action is smooth, although not as fast as it might be. This is no hindrance to addictiveness, since the armour you're attacking takes a lot of destroying, and is manned by alarmingly accurate defenders! The game has a number of levels, between which you refuel, and variety is added by different forms of targets, such as hit-and-run gunships (it's a coastal base). The

continued on page 16 ▶

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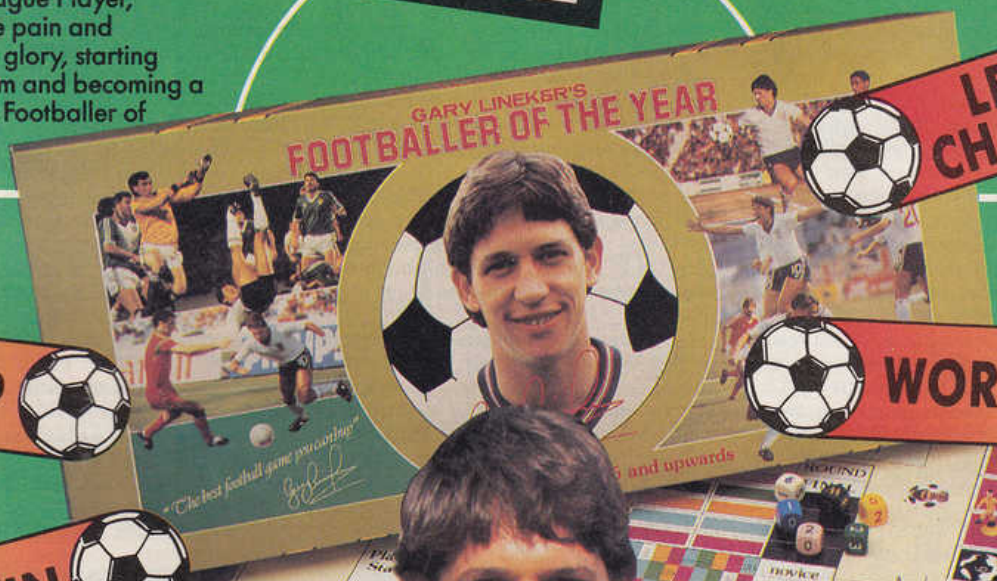
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◀ continued from page 14

atmosphere is well-finished with an appropriate background tune, which can be plugged into your MIDI synth, should you have one. All in all a nice, if simple, blaster; not worth £19.95, but good value at under a tenner.

Arch rival to Masteronic, Code Masters have now been around for just over one year, and have made huge inroads into the budget market in terms of their market share. They, too, are set to try to take the ST punters by storm, with their first products due out within the month. At the same time of going to press, there was nothing available on demo, although David Darling assures me that the Amiga version is now complete, and the ST will be here within days.

Their first title to appear will be *BMX Simulators*, the top-selling Spectrum and Amstrad game. Code Masters are one of only a few software houses simply intending to upgrade exsisting titles to the new format – most seem more intent on starting from scratch with new ideas. The price will be £9.95, and while Code Masters seem likely to release fewer than Mastertronic this year, they will have a fair range available by Christmas.

Firebird are the other of the 'Big Three' budget houses, but currently have no plans for any ST product in this category. A spokesperson expressed the view that any ST product from Firebird for the foreseeable future will almost certainly come from Firebird Gold (and, of course, Rainbird – who have already made their name in 16-bit with the instant classic, *Star Glider*). This product will therefore retail at £19.95.

Players/Interceptor Micro will be releasing a number of titles between now and Christmas, although release dates are not as yet available. These games, too, will be priced £9.95, and will apparently be based round the exisiting titles, principally the Players range. These should be worth waiting for, as Interceptor have already had some success with the ST, via their Pandora label's *Eagles Nest* game.

Bug Byte, the budget label owned by the Argus group, are also just announcing their entry to the 16-bit market. They, too, have selected £9.95 as the initial price point, with the first titles an upgrade of a shoot 'em up already out for the 8-bit Ataris – *Missing: One Droid*. An Argus spokesman was extremely bullish about the title and Bug Byte's likely success on ST, although the next title is not due until February 1988. Thereafter, there are plans to bring out as many ST titles as they can.

One of the interesting things about the emergence of a new market, or the dramatic growth of an existing one, as here, is the composition of its suppliers. A quick comparison of any list of top ST software with the corresponding 8-bit list will reveal substantial differences in software houses. People such as Psygnosis or Microdeal are major ST houses, but are unheard of by most Spectrum or Commodore owners. But things are changing, in conjunction with the trends outlined above, as the major games software houses from Spectrum, Commodore and Amstrad CPC markets move up to the ST.



Budget-priced software

This time of fluctuation gives new firms, or small ones, a great opportunity to expand – and that's just what several have done. Tynesoft have long been a bit of an oddity as a software house; they have done very well out of converting major hits onto lesser formats which the larger firms leave out – for example *Jet Set Willy* onto such computers as the Plus 4 and Electron. In addition to this, though, they have been selling ST games for some time now, and one of their recent releases, *Plutos*, has been extremely well received in the specialist press. They, too, have a reasonable range of ST budget games, although they use a number of different price points at the moment.

Liberator and *Mousetrap* change hands at £12.95 each. *Liberator* is a standard shoot 'em up, with some nice graphics effects, while *Mousetrap* is a straightforward platforms game, which looks decidedly dated on the ST. *Timeblast*, selling for £9.95, is an enhanced ST version of *Scramble* – you need to pilot your chopper through an incredibly long cavern with the most ridiculous twists, shooting various enemies which get in your way, destroying fuel dumps along the way, all the while avoiding the rockface! More simple than the ST is capable of, but a great way to while away that rainy day. Best of the lot is *Plutos*, but there are no plans to relaunch it at a budget price as yet.

Similarly, Anco have expanded quite substantially into both ST and Amiga software, which have been selling at budget prices for some time. Very tight-lipped about the success of this ST product, they will be releasing all ST products from now on at one of two price points, the familiar £19.95 and £9.95. Imminent releases are *Strip Poker 2* (supposedly with digitised graphics for added realism) and *Go-Karting* – the former at budget prices.

Like Tynesoft, and others, they seem to be taking the softly, softly approach and treading very carefully in terms of pricing, no doubt comparing keenly the different sales volumes of each price point.

Cascade have leapt to relative fame in the last twelve months following years of something less when their sole product was cassette 50, on virtually any micro you care to name. Most noted for Ace (not available on ST), they also gained publicity recently over a legal wrangle with Microprose about the two firms' pirate games. It is quite astonishing that after years of computer games, no pirate game has been released, and then you get two at once; but it could just be a coincidence. Either way, *Pirates of the Barbary Coast* is Cascade's current entry into the budget ST market. Unfortunately, this is one of those products sold at budget price, not for any business philosophy, but just because it is not worth any more.

The game casts you as Captain of the American Star (as if there was just one; I always thought America consisted entirely of Stars!!). Your daughter has been kidnapped and you have either to raise enough cash (via piracy or, for the barrow boys amongst you, trading) to pay the ransom for her. There is a combat mode which you can use on every voyage if you wish to (you can decide instead to run for it), but I wouldn't get too excited by this.

Instead of the shoot-out or cutlass-swinging I had envisaged, you get a static picture of two vessels entwined, a few (admittedly realistic) gun and cannon shot sounds, and the answer as to who has won! Oh, yes, you also have to load the cannon; each one, individually. And this was before the days of ready-made shell cartridges. You need to separately put in powder and ball, and ram each into the barrel, and then brush the whole lot down. This involves overtime by your mouse, made far harder by the worst pointer operation I have come across. Far from the highlight of the game, combat proves to be the point which turns this from a sub-standard trading game . . . to an utter waste of money. The graphics consist of a few (maximum of five, at my count) static screen pictures which are okay, but the public domain discs which are given away free with new STs contain infinitely better ones.

Gremlin have an excellent reputation for good quality software for the older formats, and are now just getting into the 16-bit field. Their first product for the ST falls into the budget category here – *Ninja Master*, at £12.95. Of the other budget firms, none had plans for imminent ST budget ranges. Many seem to regard the ST market as the inevitable next step, some in conjunction with the Amiga, although the over-riding impression is that they will use the jump as an excuse to put prices back up again.

It is interesting that by far the best budget software comes from the budget specialists; the firms criticising budget several years ago as being an outlet for substandard products are now using the low price-point as just that – for their own lousy titles! Meanwhile, specialists such as Mastertronic, Code Masters and Tynesoft/Microvalue are producing good quality software; where Players and Anco fit in remains to be seen. Watch this space!

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MARK JENKINS with more for the 64 . . .

Last week we looked at two new music packages from Sonus, the *Super Sequencer* (which is available in C64 or C128 versions) and the optional MIDI Processor which gives you greater editing power over files created by *Super Sequencer*.

This time we are looking at two Sonus packages which could more correctly be described as applications, since they do not play sounds themselves.

One is the *RX Librarian*, which will be useful if you own a Yamaha drum machine, and the other is the *Double Banked Librarian/Programmer*, which will be useful if you own a Yamaha DX synth, and even more so if you own two of the things.

On to the *RX Librarian* first though. The package works with Yamaha's RX11, which is a mid-price drum machine, and with the RX21, which is definitely on the budget side of things.

There is also a Latin version of the RX21 called the RX21L, which is presumably compatible, although some of the factory patterns supplied with the software may not make much sense when played on the L version.

Yamaha's latest drum machine is the RX17, but it seems unlikely that the package will work with this one since the 17 has more sounds and several new programming features.

However, there is a large user base of 21 and 21L owners out there, so the package has some appeal.

The package works with a C64 or a C128 in 64 mode and with a MIDI interface from Sonus, Passport, Yamaha (not available in the UK!), Syntech, or Sequential Model C64 or 242.

Both MIDI In and MIDI Out jacks need to be connected to the drum machine and the first page of the software asks you to choose the appropriate interface.

The top line of the first page of software includes an eight-letter File Name, a Pattern Data Present indicator, a Mix data Present indicator, and a System Exclusive Channel number.

Mix Data refers to a performance memory on the drum machine which sets MIDI Channel, MIDI Note, Instrument Level, Accent Level, Pan Position and other parameters for a particular pattern, while System Exclusive Channel refers to the MIDI channel used for transmitting pattern data. On the RX11 this has to be channel 1; on the RX21 it can be any channel from 1–16 as long as you set the same channel on the drum machine itself.

The other main point you have to observe before the thing will function is that you have to bring up the System Information Available display on the drum machine, otherwise it will ignore the System Exclusive codes whizzing towards it from the computer.

The Pattern Map box is a matrix labelled from 0 to 9 across and downwards, and blocks in this matrix are shaded to indicate whether a particular pattern has been recorded. On the RX21, patterns 56–99 are preset, but you can copy them into programmable memories for editing.

Like all Sonus programs, the *RX Librarian* has a Menu at the bottom of the screen which is driven by the Function keys. Holding Shift will give you another four Menu options, and in the Mix menu, holding down control will give you a third set of options.

Hidden commands include C to change MIDI Channel; Shift/L to print out the screen; Shift/Q to Quft; and so on.

Working the program normally requires use of the function keys almost exclusively though; for instance, F1 will "Get RX memory", (which includes all pattern and Song data) and F3 will "Send RX Memory".

It is possible to enter names or comments for individual patterns and to edit these comments, which can be up to 20 lines long.

"It is easy to move around banks and individual sounds to arrange them in a convenient order, but the actual sound editing is not all that special"

You could use this for data about the settings on the mixer which you intend to use when mixing down the drum part.

A drum Mix can be named and saved and of course you can get a disc directory and scratch files at will.

Unfortunately the Sonus package does not have any facilities for composing new patterns or songs visually, which would have been interesting; however, it is a boon for frequent Yamaha users and much more reliable than saving songs to tape. Price is £30.

The *Double Banked Librarian/Programmer* is a little more expensive at £60, which is understandable since it's a much more complex program.

The program operates in a similar way to the *RX Librarian* and handles two banks of sounds, A and B, and you can switch from one to the other quickly and easily.

The obvious application lies in editing a DX7 synth connected to a TX7 module, when in many cases you will want to create sounds which are combinations of the output of the two synths.

Sonus certainly provide plenty of sounds for you to get started, with eight banks (eight times 32 sounds) on the disc. It is easy to move around banks and individual sounds to arrange them in a convenient order, but the actual sound editing facility is not all that special; there is no graphic element as on some other DX editors, simply various lists of figures divided into three pages which cover all the DX parameters such as Operator (oscillator) frequencies, scaling, keyboard modes and so on.

However, at the price, the Sonus package is pretty good value for money. It really is pretty offputting to have to edit DX synths using just the single Data Entry slider on the synth itself, and anything which displays all parameters simultaneously (and then does it all over again for a second synth) is well worth considering.

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Let the music play

Graham Edkins takes us on a guided tour of music programs available on the Compunet system.

Way back when Compunet started, the first programs to gain real popularity were short pieces of music, written to take full advantage of the CBM 64's sound chip (SID).

The most popular writer of these was Bogg, and it is a pretty safe bet that most-users of the network have something by him stored away.

Music still has a major role on the network, there are areas covering hardware and software, as well as music programs and magazine areas about music.

Many of the programs that I shall mention are recommended for downloading and saving, so get yourself a few blank discs and be prepared to fill them!

Go to MUSIC for the Music Hall; the first entry is FM Music Files which contains some very detailed and useful information on the CBM FM Sound Expander, Sound Studio and FM Editor/ Composer which are all written by CRJT85.

You will also find a large selection of Pre-written music for use with your Sound Expander, a couple to mention here are 'Samples' from Ramjet and Annie's Song.

The MUSIC directory also contains the Midi Help Line (GOTO MIDI), IM94 covers every aspect of the MIDI that you could think of, including Channels, Real/Step time, Messages, Controllers and Data sheets, in addition to the information on Computers & MIDI and Keyboards along with a full glossary.

The writer is very knowledgeable on all aspects of the MIDI interface and this area provides interesting and informative information which will be fascinating even to those who do not use one.

Other areas in the music hall hold music demos, of particular note is Matt Grey's section where he has 12 tunes.

One that I particularly liked was the 'Holiday Re-Mix' which is based upon 'Holiday Morning' and arranged on Sound Monitor. Matt also has an area in the Music Hall of Fame (GOTO MUSIC) where he has a further 11 tunes.

The Music Hall of Fame contains some astonishingly good music demos, and Bogg, who started the music trend on Compunet, has his own area (GOTO BOGG) where you will find two albums. These are simply collections of the demos that he has uploaded which have a main Boot or Menu Program to make loading faster and easier.

To download an album will take quite a time, and will also take a large amount of storage space, but the effort is very worthwhile.

Bogg's Album 1 holds his earlier work which are arrangements of other tunes, the second album has tunes composed by himself.

If you want to hear him playing a selection of his hardware then you could take up his offer of a cassette, you receive a full tape in return for a blank tape and return postage, details of this are on a text frame in his area.

Rob Hubbard joined Compunet when one user sent him a modem because he was such a fan of his music in games, GOTO ROB and you will see the fruits of this, including an incredible bit of software called the Thrust Concert.

Most users must surely by now have this saved, but if you are one of the few that hasn't, then download it and find out what you have been missing.

Another piece well worth seeing is The Monster Show which is in Maniacs Den (GOTO MANIAC), this has a interesting adaptation of a tune written by Bach (I think) complete with a good hi-res graphic screen, and a nicely styled and readable scrolling message in the bottom border. Matt Perry's area (GOTO MATT) has a further two albums with graphics by Shandor which gives you two good reasons to download them. They are Album 1 and The Xmas Album.

More compulsions of music demos are from Tony Crowther working under the title of WE Music (GOT WE). They are named 'Demos 1-3' and I would recommend that you do not miss any of them.

Kanor has a selection of digitised music uploaded in MUSICH and, although they take up a great deal of disc space, I think that you must download one at the very least just to hear the effect of a digital recording of a song.

Each is a very short recording, but is on a continual loop so that the tune will run indefinitely. My favourite of these is the Holiday Rapp, if you download this one, I am sure it will make you want to hear the rest.

There are many more items in the Music Hall of Fame, here I have just covered the first directory page. The good news is that all of the demos and programs that I have mentioned can be downloaded with no charge, so there is another good reason to log-on and have a look.

As I mentioned at the start, there are also magazine-type areas for music lovers, a good example of this is Diceman's Megawatt II area in the Hotbed (GOTO 303627). Here you can read about the world of heavy metal music, including news updates and local gigs.

There is a good chance you will be able to find an area which fits your particular musical taste, but if you can't then there is nothing stopping you from starting one.



Screenshot of music section of Compunet

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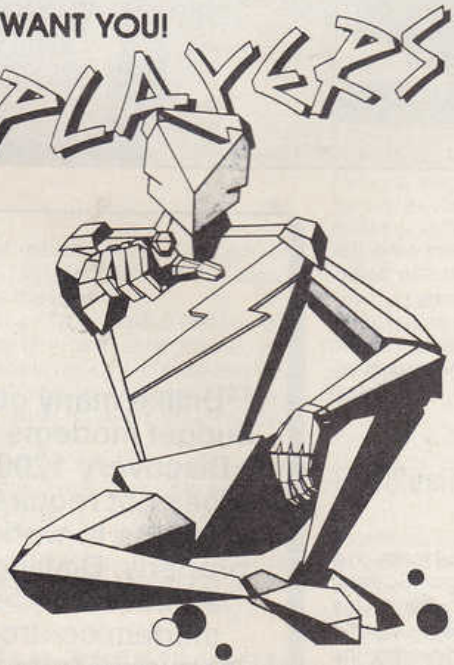
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Call home

Modems, like all technical gadgets, are getting smaller. Here Steve Gold tries out one of the smallest (and newest) on the market today – the Discovery 1200P.

Judging from the number of modems on sale today, the last thing the market needs is another modem. Or so I thought until I met Clive Warner of Digital Matrix.

Digital Matrix is a small (but growing) West Midlands firm that specialises in things computerate. Warner's latest project is importing low-cost pocket modems and selling them at ridiculous prices in the UK. Judging from the Discovery 1200P – a modem capable of 300 and 1200 baud full duplex – he looks to be on to a winner.

The Discovery 1200P comes in a beige unit no bigger than a deck of cards.

Power comes from an integral – and replaceable – 9 volt PP3 battery. On one end of the unit is the familiar 25-way RS232 serial interface, into which is plugged a cable from your computer.

On the side of the unit are two female telephone sockets – one is for the phone line, and the other is for a standard phone.

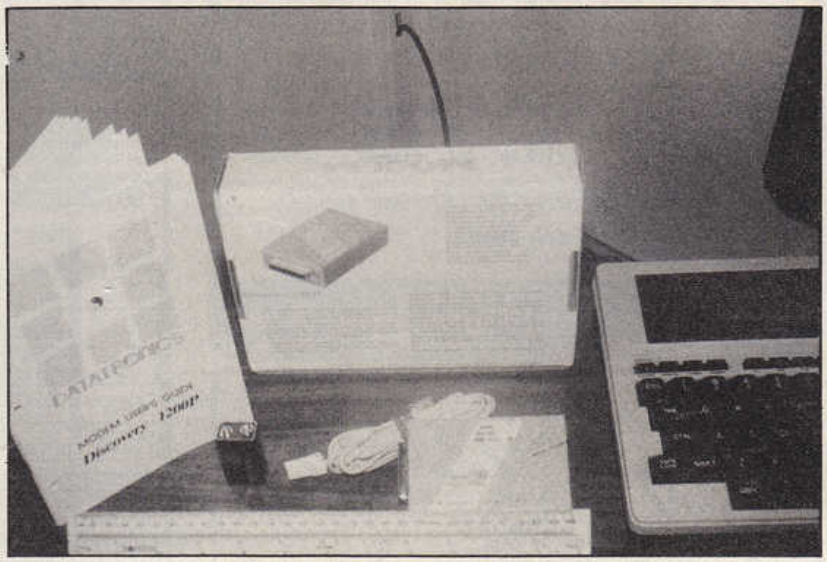
Unlike many other budget modems, the Discovery 1200P does not require a phone to work properly. Dialling is achieved – using pulses (loop-disconnect) and/or tones (DTMF) – under modem control, which is instructed from the computer keyboard.

As is usual with many of today's modems, the Hayes command set is fully supported and – unlike many of the British made units – the extended Hayes command set for host system etc, use is also available.

Tucked away inside the battery compartment is a four-gang set of dip-switches. They control respectively: Bell/CCITT frequencies, Auto-answer state (on/off), DTR (Data terminal ready) state (real or forced true), and carrier detect (real or forced true).

Do not worry too much if these dip switches don't mean much to you. If you are a modem user and are not familiar with the jargon in the preceding paragraph, the modem's manual adequately explains the correct dip-switch settings for a variety of situations.

In fact, such is the clarity of the excellently-produced 56-page printed manual (colour/A5 sized) that many British modem manufacturers should compare their own manuals with the Discovery's, and then hang their heads in shame.



For beginners and novice users alike, the Discovery's manual is divided into seven distinct and easy-to-read sections.

Section 1 is for the experienced (and hasty novice) user, and – for many users – is all that is necessary to get the modem up and running.

Calls in progress

Monitoring the progress of a call made on a modem is not as easy as it sounds. So many times I have had to cock my ear to the modem, straining to hear the welcoming sound of a distant carrier answering the call.

The Discovery removes this onerous task, using three front panel LED indicators, and a variable-volume call loudspeaker on the rear of the unit to monitor the progress of a call.

The LED's show respectively: the state of the battery; the speed of the call (1200 baud equals high speed); and carrier detect.

"Unlike many other budget modems the Discovery 1200P does not require a phone to work properly. Dialling is achieved under modem control, instructed from the computer keyboards"



The loudspeaker can be set to remain quiet at all times, or can be set on whilst the call is connecting, and on continuously. Additionally, the speaker's volume can be varied under Hayes-command control.

As mentioned previously, the dip-switches inside the modem's battery compartment control the state of the modem after powering-up.

Unlike many other US Hayes-compatible modems, the Discovery's hardware dip-switch settings can be altered wholly under software control, allowing the unit to be used with a variety of computers and terminals, without touching the dip switches at all.

In fact – a nice touch from Digital Matrix here – the modem comes with its dip-switches set to a UK default.

In use

In use, the modem behaved impeccably, performing as well as modems costing three times the price.

The lack of a 1200/75 baud rate proved a small obstacle in accessing Prestel, BT's public viewdata network, but the service is gradually introducing a series of 1200 baud (and 2400 baud) modem ports throughout the country.

Connection to 1200 baud full duplex (V22) services on the BT and Mercury trunk networks proved to be no problem – the modem sailed on and on.

Some slight problems were encountered with connecting to the BT's PSS (Packet Switch Stream) network, when using some of the older PSS ports.

This is due to the age of the modems in use on PSS, and no fault of the Discovery modem at all.

By skilful setting of the modem's internal 'wait for carrier' delay – using the ubiquitous Hayes command set – the problem was resolved.

PSS say that these 'old' modem ports are being phased out in the coming months, following complaints from several modem users.

It's said that by 1988, the service should be fully equipped with newer modems, so hopefully the problem should solve itself.

Gripes

At £199.00 – who's complaining? My one gripe about the modem would be its failure to give any indication of its auto-answer status.

It would be nice to have an indication of this, as unwary callers could be greeted with the relatively unfriendly (to humans, that is) warble of a modem answering the phone. This is only a minor criticism, and, providing the auto-answer functions are enabled only within software (ie, the dip-switches are set for auto-answer off), there should not be too many complaints from Auntie Ethel trying to contact the family!

Peripherals

Despite its budget price-tag, the Discovery comes in a well-packed box – ironically this is no larger than many mains-powered modems – containing a good length of phone cable (for connection between the UK phone socket and the modem), an alkaline high-energy battery, a neat plastic/leatherette carry case, and a comprehensive manual.

Digital Matrix say that a UK mains power transformer – for stepping down from 240 volts A/C to 9 volts D/C – will shortly be available for the Discovery.

On the pre-production unit supplied to *Popular Computing Weekly*, the phone sockets were of the US variety. The company say that the production units available for sale to the general public will have the more standard BT 'series 600' type sockets fitted.

For the couch potato modem users amongst us, the series 600 sockets are the flat white type that BT is installing in modern houses. Virtually all UK modems always have this type of socket fitted as standard.

Conclusions

This modem was used extensively whilst connected to an IBM PC compatible, a BBC Modem B and – whilst 'on the road' – with a Tandy Model 102 laptop.

The modem was also successfully used in conjunction with an NEC handheld portable cellular phone whilst aboard a British Rail train (although it was in the station at the time!)

I would have no hesitation in recommending this modem as one of the best buys on the communications market today.

Its Hayes compatibility and battery-powered portability make it an ideal first choice – as well as a back-up – modem for everyday use.



"In use the modem behaved impeccably, performing as well as modems costing three times the price . . . despite its budget price, the Discovery comes in a well-packed box – containing a good length of phone cable, an attractive high-energy battery, neat plastic carry case and a comprehensive manual"

Technical details

Discovery 1200P modem:

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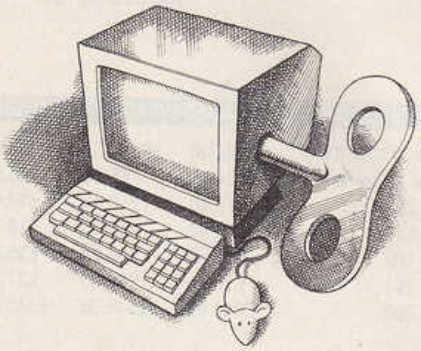
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**Popular Computing Weekly*, 22-28 May 1987. †*Personal Computer World*, February 1987. ***Subject to availability.*

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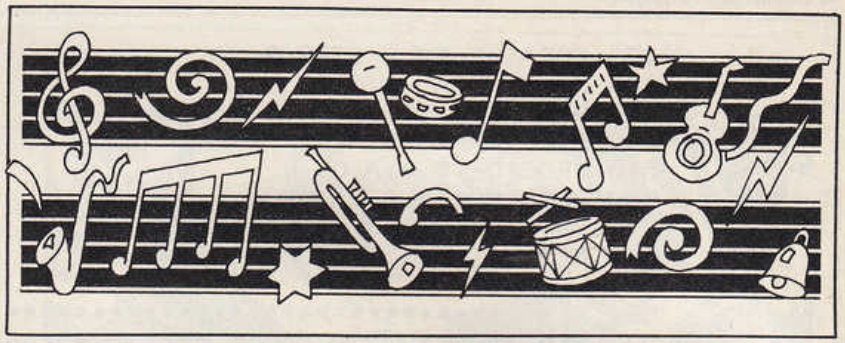
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3D Graphics

D J Uys



This program features the basic formulae for 3D plotting. The user enters a function with X and Y as the independant variables. After this a 3D grid of the function is plotted with X and Y incrementing from −7 to +7. The routine does lack error trapping but this can easily be incorporated by the reader.

```
 10 MODE0
 20 REM ** SCALE FACTOR **
 30 SCALFAC=40
 40 PROCSCREEN
 50 INPUTTAB(1,1);"Z(X,Y)="A$
 60 REM ** Draw 3-D grid of function Z(X,Y) **
 70 FORX=-7 TO 7
 80 Y=-7
 90 Z=EVAL(A$)
100 PROCTMP(X,Y,Z)
110 FORY=-6 TO 7 STEP 0.5
120 Z=EVAL(A$)
130 PROCTDP(X,Y,Z)
140 NEXTY,X
150 FOR Y=-7 TO 7
160 X=-7
170 Z=EVAL(A$)
180 PROCTMP(X,Y,Z)
190 FORX=-6 TO 7 STEP 0.5
200 Z=EVAL(A$)
210 PROCTDP(X,Y,Z)
220 NEXTX,Y
230 REM ** Hit any key for new graph **
240 REM ** or P to print              **
250 REPEAT
260 K$=INKEY$(10)
270 UNTIL K$<>""
280 IF K$="P" PROCDUMP
290 GOTO40
300 REM ********************************************
310 DEFPROCSCREEN
320 CLG
330 REM ** Draw x,y and z axes **
340 VDU29,640;512;
350 MOVE-640,-512:DRAW-640,508
360 DRAW636,508:DRAW636,-512:DRAW-640,-512
370 MOVE0,-512:DRAW0,512
380 VDU5
390 MOVE25,485:PRINT"z"
400 MOVE-640,0:DRAW640,0
410 MOVE615,-10:PRINT"x"
420 MOVE670*COS(PI/6),670*SIN(PI/6)-20:PRINT"y"
430 MOVE895*COS(PI/6),895*SIN(PI/6)
440 DRAW-900*COS(PI/6),-900*SIN(PI/6)
450 VDU4
460 REM ** Draw tics on axes **
```

Continued on page 28 ▶

PROGRAMMING: BBC

◀ Continued from page 27

```
470 FORA=-8 TO 8 STEP 2
480 PROCTMP(A,-0.3,0)
490 PROCTDP(A,0.3,0)
500 PROCTMP(-0.3,A,0)
510 PROCTDP(0.3,A,0)
520 PROCTMP(-0.2,0,A)
530 PROCTDP(0.2,0,A)
540 NEXT
550 ENDPROC
560 REM ***********************************************
570 REM ** Draw 3-D point on 2-D screen **
580 DEFPROCTDP(X,Y,Z)
590 XN=SCALFAC*(X+(Y*COS(PI/6)))
600 YN=SCALFAC*(Z+(Y*SIN(PI/6)))
610 DRAWXN,YN
620 ENDPROC
630 REM ***********************************************
640 REM ** Move to 3-D point on 2-D screen **
650 DEFPROCTMP(X,Y,Z)
660 XN=SCALFAC*(X+(Y*COS(PI/6)))
670 YN=SCALFAC*(Z+(Y*SIN(PI/6)))
680 MOVE XN,YN
690 ENDPROC
700 REM ***********************************************
710 DEFPROCDUMP
720 REM ************************
730 REM * Insert or call       *
740 REM * printer dump routine *
750 REM * here                 *
760 REM ************************
770 ENDPROC
```

PROGRAMMING: AMSTRAD

String Split

Simon T Goodwin

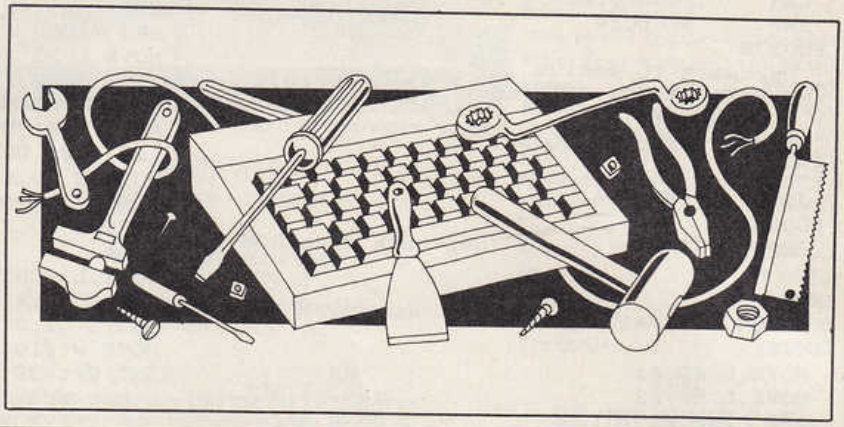
Split up strings into the verb/noun format which is used by many adventure games, with this string handling routine for the Amstrad CPC micros. The main routine starts at line 100, takes the string A$ and splits it into VERB$ and NOUN$.

```
10 A$="get the old peice of rope"
20 GOSUB 100:PRINT "VERB:";verb$:PRINT "NOUN:";noun$
30 END
40 :
100 fo=0:a1$=LOWER$(a$):FOR n=1 TO LEN(a1$)
110 IF MID$(a1$,n,1)=" " AND fo=0 THEN verb$=LEFT$(a1$,n-1):fo=1
120 NEXT
130 IF fo=0 THEN verb$=a1$
140 fo=0:FOR n=LEN(a1$) TO 1 STEP -1
150 IF MID$(a1$,n,1)=" " AND fo=0 THEN noun$=RIGHT$(a1$,LEN(a1$)-n):fo=1
160 NEXT
170 RETURN
```

Mono Emulator

Mick West

Save yourself £150 with Mick West's Mono Emulator, the program that emulates the hi-res monochrome mode and will then run a number of hi-res only applications. Alternatively, only save £146 and send £4 for a ready assembled program on disc, to Needham Hall, 205 Palatine Road, West Didsbury, Manchester M20 8TU.



```
 MOVE.L $0436(A5),A0
 ADD.L #SPACE-XBIOS,A0
 MOVE.L A0,POKE1+2              ; SPACE ADDR
 MOVE.L A0,POKE2+2      ; IN BOTH ROUTINES
 ; SET FLY TO TOP OF SCREEN
 MOVE.L #0,MONOPOS+SPACE
SCANPOKE:
; FORTY LINES/VBLAN DEFAULT
 MOVE.W #40,MONOLINES+SPACE
 MOVE.W #0,MONOCOUNT+SPACE   ; NONE  YET
 MOVE.L $0436(A5),A2          ; Get Memtop
 MOVE.L #XBIOS,A1           ; NOW MOVE THE
; CODE FOR XBIOS & VBLANK
MOVE.W #XEND-XBIOS-1,D0
XMOVE:
 MOVE.B (A1)+,(A2)+
 DBF D0,XMOVE
 LEA GEN,A1       ; Generate the move code
 MOVE.W #39,D0 ; 40 MOVEs to first plane
GENMOVE1:
 MOVE.L (A1),(A2)+
 DBF D0,GENMOVE1
 ADDQ.L #4,A1
 MOVE.W (A1)+,(A2)+    ; Move SUB #158,A0
 MOVE.L (A1)+,(A2)+
 MOVE.W #39,D0 ; 40 MOVEs to other plane
GENMOVE2:
 MOVE.L (A1),(A2)+
 DBF D0,GENMOVE2
 ADDQ.L #4,A1
 MOVE.W (A1),(A2)+          ; Move the RTS
 MOVE.L $0436(A5),A0
 MOVE.L A0,$B8 ; New XBIOS Vector to $B8
 ADD.L #VBLANK-XBIOS,A0
 MOVE.L A0,$70 ; New VBLANK Vector to $70
 LEA      $04CE(A5),A0
 MOVE.L   A0,$0456(A5)
 MOVE.W   #$0007,D0
FC033E:
 CLR.L    (A0)+
 DBF      D0,FC033E
 JSR      $FC21B4
 MOVEQ    #$02,D0
 JSR      $FC0596
FC0360:
```

Continued on page 30 ▶

◀ Continued from page 29

```
 LEA     FC0376,A6
 JMP     $FC0CE4          ; Wait for fly
FC0376:
; Hardware to medium
 MOVE.B  #$0001,$FF8260.L
; software to mono
 MOVE.B  #$0002,$00044C.L
FC0386:
 JSR     $FCA76A.L
FC03A0:
 JMP $FC03A8         ; Jump back into ROM

XBIOS:
 MOVEM.L A1/A2,-(SP)
POKE1:
 MOVE.L #0,A1
 MOVE.L SP,A2                    ; A2=STACK
 ADD.L #8,A2                   ; SKIP A1/A2
 BTST #5,(A2) ; IF CALLED FROM USER MODE
 BNE NOTUSER                     ; THEN
 MOVE.L USP,A2       ; GET THE USER STACK
 SUB.L #6,A2      ; OFFSET AS SUPER STACK
NOTUSER:
 MOVE.W $6(A2),D0                ; GET CODE
 CMP.W #2,D0    ; CHECK FOR PHYSBASE CODE
 BEQ PHYSBASE ; JUMP NEW PHYSBASE ROUTINE
 CMP.W #4,D0      ; CHECK FOR GETREZ CODE
 BEQ GETREZ ; JUMP TO NEW GETREZ ROUTINE
 CMP.W #5,D0   ; CHECK FOR SETSCREEN CODE
 ; NAUGHT NEEDS CHANGING SO NORMAL XBIOS
 BNE NORM_XBIOS
 MOVE.W #-1,16(A2)    ; NO CHANGE TO RES.
 MOVE.L 12(A2),D0          ; GET NEW PHYS
 CMP.L #-1,D0               ; IF NEGATIVE
 BEQ NORM_XBIOS           ; THEN NO CHANGE
 MOVE.L D0,MONO(A1)   ; NEW BASE FOR MONO
 MOVE.L #-1,12(A2)     ; SET TO NO CHANGE
; AND CONTINUE WITH NORMAL XBIOS
 BRA NORM_XBIOS
PHYSBASE:
 MOVE.L MONO(A1),D0       ; GET MONO ADDR
 MOVEM.L (SP)+,A1/A2
 RTE    ; AND RETURN IT AS 'REAL' SCREEN
GETREZ:
 MOVE.W #2,D0    ; RETURN MONO RESOLUTION
 MOVEM.L (SP)+,A1/A2
 RTE
NORM_XBIOS:
 MOVEM.L (SP)+,A1/A2
 ; JUMP INTO THE NORMAL XBIOS ROUTINE
 JMP $FC0748


VBLANK:
 MOVEM.L D0-D7/A0-A6,-(SP)
 MOVE.W #$333,$FF8242  ; Grey for single
 MOVE.W #$333,$FF8244    ; For 01 and 10
 BTST #0,$FF8240         ; Check inverted
 BEQ INVERT                  ; Jump if so
 MOVE.W #$777,$FF8240        ; White back
 MOVE.W #$000,$FF8246         ; Black ink
 BRA POKE2
INVERT:
 MOVE.W #$000,$FF8240        ; Black back
 MOVE.W #$777,$FF8246         ; White ink
POKE2:
 MOVE.L #0,A5  ; A5 To base of var space
 CLR.L D0
 MOVE.B $FF8201,D0      ; Video base high
 LSL.L #8,D0
 MOVE.B $FF8203,D0       ; Video base low
 LSL.L #8,D0
 MOVE.L D0,A3
 MOVE.L MONO(A5),A0
 MOVE.L MED(A5),A1
 CMP.L A1,A3     ; MED still real screen?
 BEQ MEDOK                  ; Yes so jump
 MOVE.L A3,A0
; Set MONO From new Physbase
 MOVE.L A0,MONO(A5)
 MOVE.L A1,D0
 LSR.L #8,D0
 MOVE.B D0,$FF8203 ; Physbase back to MED
 LSR.L #8,D0
 MOVE.B D0,$FF8201
MEDOK:
 MOVE.L MONOPOS(A5),D2
 ADD.L D2,A0
 ADD.L D2,A1
 MOVE.W #10,D1
 TST.B $43E
 ; Set speed to 10 if using disk drive
 BNE COPYMOVE
 TST.B $9BE
 BNE COPYMOVE
 MOVE.W MONOLINES(A5),D1 ; ELSE preset
COPYMOVE:
 BSR XEND ; COMBINE & MOVE TWO MONO LINES
 SUBQ.L #2,A1       ; BACK TO NORMAL PLANE
; DOWN ONE MED, TWO MONO LINES
 ADD.L #160,MONOPOS(A5)
 ADD.W #1,MONOCOUNT(A5)    ; ONE MORE LINE
 CMP.W #200,MONOCOUNT(A5)     ; DONE 200 ?
 BNE NOT200
 MOVE.L #0,MONOPOS(A5) ; TO TOP OF SCREEN
 SUB.L #32000,A0                 ; FOR MONO
 SUB.L #32000,A1                  ; AND MED
 MOVE.W #0,MONOCOUNT(A5) ; RESET  COUNTER
NOT200:
; LOOP ROUND MONOLINES TIMES
 DBF D1,COPYMOVE
 MOVEM.L (SP)+,D0-D7/A0-A6
; FIRST BIT OF NORMAL VBLANK
 ADDQ.L #1,$466
 SUBQ.W #1,$452          ; TEST IF ENABLED
 BMI NOVBL                   ; SKIP IF NOT
 MOVEM.L D0-D7/A0-A6,-(A7)
 ADDQ.L #1,$462
 SUB.L A5,A5
 JMP $FC069E    ; SKIP MONITOR DETECTION
NOVBL:
 ADDQ.W #1,$452
 RTE                ; NO VBLANK SO RETURN

GEN:
 MOVE.W (A0)+,(A1) ; 40 MOVE FOR 1 LINE
 ADDQ.L #4,A1
 SUB.L #158,A1   ; A1 BACK TO LINE START
; THEN 40 MOVES TO NEXT PLANE
 MOVE.W (A0)+,(A1)
 ADDQ.L #4,A1
 RTS

MESSAGE:
 DC.B 27,'E','The Mono Emulator - Mick
West 1987',13,10,13,10,0
INPUT:
 DC.B 13,10
 DC.B 'Enter speed (10-80, return=40)'
 EVEN
SPACE: DS.L 6     ; SPACE FOR VARIABLES
MONO:       EQU 0 ; ADDR OF MONO SCREEN
; ADDR OF REAL MEDIUM SCREEN
MED:        EQU 4
MONOPOS:    EQU 8 ; POS IN MONO SCREEN
MONOLINES: EQU 12 ; NO OF LINES/VBLANK
MONOCOUNT: EQU 14     ; LINE NO IN MONO
XEND: NOP      ; POS OF CALCULATED CODE
```

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Crow control



One of the biggest sellers on the Apple Mac in the States over the past 18 months has been Silicon Beach's *Dark Castle*. Ostensibly a surreal platform and ladders game, *Dark Castle* is lifted out of the mire of similar mediocre product by the extensive use of sampled sound-effects and interwoven humour.

The original Mac program has been converted to the Amiga and ST by another American company, Three Sixty, and Mirrorsoft has picked up the licence to distribute all versions in this country.

The objective of *Dark Castle* is to enter the said haunted castle on the hill, and defeat the Black Knight. Before you can meet the Knight in the usual final confrontation, you must collect a shield, fireball, and a wizard's blessing, to help you in this laudable quest.

The first thing a prospective doer-of-good has to decide is which level to play on. Beginner level may sound a bit girly, but it's essential if you're going to avoid being stuck with arrows like a pin cushion early on. Having set up the options the castle drawbridge creaks convincingly and slams open. And in you go.

Now it's decision time. You're stood in the castle entrance hall, minor doors adorn each side of the hall while straight ahead loom the main doors leading, eventually, to the Black Knight. Select a door, obviously not the main one because it's pointless if you don't have all the gear, and off you trot.

One of the strange aspects of the game becomes immediately apparent; the control system. Left, right, up, down, pick up, and use item, are all on the keyboard while arm rotation and fire are mouse controlled. On first impressions you'd think this was designed for an octopus, or at the least, someone with three arms. Having the major directional keys on A, D, and W, S initially causes even the most tolerant of players to rant and rave, but, when you've played the game for a while you come to realise that this set-up is the only feasible one if you want to be able to point your arm and fire as well. Not only that you only ever need to use two keys at once, and with them in close proximity complex control becomes a reality.



Many of the scenes in *Dark Castle* are variations on well-worn themes. On one, you are standing by the side of a tower, a flock of crows are gathering overhead, and the exit to the screen is on a cliff on the other side of the screen. You get to the top by shinning up one of three ropes. But of course it isn't that easy. It never is. The crows wheel and dive towards you like German Stuka dive bombers, your anti-crow fire consists of a barrage of rocks. The air is quickly filled with the sounds of diving crows, dying crows, and crows going splat as they crunch into the ground. Hee hee. After plastering the aerial menace you must leap towards the bottom of the ropes and face the second danger, the meanies. I'm not sure what they're actually called but they are like hobbits which run along, wave their hands in the air and issue squeeky laughter. Squash the little buggers with a rock and you can shin up the rope to safety.



Some of the scenes contain *Donkey Kong* elements, large rocks are hurled down platforms towards you, booming as they pound along, while others reminiscent of *Hunchback* with their swinging ropes and carefully timed leaps over foot level hazards. One of the nicer touches to this charming game becomes apparant when you fall off a low platform and out of the screen altogether. Instead of losing a life you end up in a screen called 'Trouble'. To get back to where you were, you have to get out of Trouble successfully.

Graphically, it has to be said that *Dark Castle* is not going to win any awards; this isn't another *Defender of the Crown*. What does make up for the mediocre graphics are the sound and humour. Squeaks, grunts, whipcracks (a guard whipping prisoners is a trifle pervy), creaks, groans, splats, laughter, splashes (in a water-filled cavern with stalactites dropping from the ceiling) and a dragon roaring are all exquisitely well done and genuinely amusing in places.

While I doubt that this game will convert to 8-bit at all satisfactorily, *Dark Castle* for Amiga/ST owners is just that bit different from the usual platform and ladders format to warrant serious consideration in the money out of wallet department.

Duncan Evans

Program *Dark Castle* **Type** Arcade **Price** £24.95. **Supplier** Mirrorsoft, Athene House, 66–73 Shoe Lane, London EC4P 4AB.

NEW RELEASES

Your complete guide to all the software released this week



Amiga

Program *The Lurking Horror* **Type** Text Adventure **Price** £24.95 **Supplier** Activision, 23 Pond Street, London NW3.

Surely the ultimate insult to the Amiga. A text adventure. While those who like Infocom will appreciate this foray into the world of horror it's a bit much to expect Amiga owners to pay this sort of money for a program that makes no use of their machines abilities.

Program *Nord and Bert Couldn't Make Head or Tail of It* **Type** Text Adventure **Price** £24.95 **Supplier** Activision, 23 Pond Street, London NW3.

Nord and Bert go shopping is probably the dullest game Infocom have produced. Eight tales of sheer boredom.

Atari ST

Program *Chopper X* **Type** Arcade **Price** £9.95 **Supplier** Mastertronic, 8-10 Paul Street, London EC2A 4JY.

Remember Paradox, the people who did ST Karate and a range of singularly awful arcade games, for Eidersoft? The programmer and graphic artist, Mrisc-Flogel and Amyat-Leir have produced their latest effort for Mastertronic, and I'm glad to report that they've learnt something since last year.

Horizontally scrolling action with you as a decent sized Helicopter blasting away at tanks and military vehicles just about encapsulates the entire game.

The scrolling is noticeably jerky but the scenery is nicely drawn and quite colourful. Unfortunately the MIDI compatible music is just like that on all the other Paradox titles. Awful.

Less professional but more interesting than the similar Jupiter Probe.

Commodore 16

Program *Aliens* **Type** Arcade **Price** £9.95 **Supplier** Electric Dreams, Terminus House, Terminus Terrace, Southampton SO1 1FE.

Not to be confused with the US version, this is the UK single game interpretation of the gloriously exciting film.

Commodore 64

Program *Kromazone* **Type** Arcade **Price** £2.99 **Supplier** MAD, 8-10 Paul Street, London EC2.

Program *Starlifter* **Type** Arcade **Price** £1.99 **Supplier** Mastertronic, 8-10 Paul Street, London EC2.

Program *Freddy Hardest* **Type** Arcade **Price** £8.95 (tape)/£12.95 (disc) **Supplier** Imagine, 6 Central Street, Manchester M2 5NS.

Run, kick, kill, jump, splodge, die. See last week for other biting comments.

Program *Beat-It* **Type** Arcade **Price** £1.99 **Supplier** Mastertronic, 8-10 Paul Street, London EC2.

The deluge of Mastertronic releases continues this week with quite a horrible game where you collect musical notes.

Program *Spore* **Type** Arcade **Price** £1.99 **Supplier** Bulldog, 8-10 Paul Street, London EC2.

Not too sure about this one either. Genetically altered spores have run rampant throughout the lab and you must go in and de-infest the place with insecticide (sounds a bit like our office).

Program *IK+* **Type** Arcade **Price** **£9.95** **Supplier** System 3, 23 Pond Street, London NW3 2PN.

International Karate + leaps onto your screens. Can't be bad if you fancy more of the same.

Program *Red LED* **Type** Arcade **Price** £9.95 (tape)/£14.99 (disc) **Supplier** Starlight Software, 9 Disraeli Road, Putney, London SW15.

Ariolasoft's label at last comes good. Excellent Marble Madness style scrolling graphics and sounds by Tony Crowther make this one worth getting.

Program *Blockbusters* **Type** Quiz **Price** £7.95 **Supplier** Domark, 22 Hartfield Road, London SW19 3TA. Re-heated version of TV quiz game which features Bob 'patronising' Holness.



MANY of you may have been unfortunate enough to run into the Domark stand at the PCW show. If you were really unlucky, you'd have run into it while Jeffrey Archer was there plugging the computerisation of his bestseller, *Not a Penny More, Not a Penny Less.*

Quite why they all thought that computerising a book released in 1976, and hardly sparkling with a timeless quality, was a good idea. I don't know. Anyway, the plot is this.

Harvey Metcalfe, something of a crook, set up a dodgy company to attract greedy investors. Once the readies are in the bank, he causes the value of the shares to plummet, ruining the four major piglets both financially and socially (oh dear). Sounds a bit like the BP share offer, really.

You are one of the 1970's yuppies, and joining up with a Harley Street doctor, a Viscount, and a Bond Street art dealer, you promise to steal all of the $1,000,000 back, not a penny more, not a penny less (as the advertising keeps telling you).

Sensibly, Domark have turned the book into an adventure game (of sorts) and incorporated digitised pictures and even speech. The entire package is attractively presented and, rather essentially, there's a free copy of the book.

The display is basically in three parts. The main section contains the digitised picture (a small monochrome snapshot), some decoration and a terse description of the scene. In the middle is any response to your input and at the bottom is the command line.

You start the adventure in your room in Magdalen College, Oxford, armed only with a dossier, camera and a few other effects. Rather than progressing along traditional adventure lines, *Not a Penny . . .* guides the player through the plot. If you have collected an essential item for later on, you won't be allowed any further into the story. Being told that you decide to return to the college when you have no intention of doing so is rather galling and hardly in the adventure spirit. Domark recommend that you read the novel before starting play. I would say that it is absolutely essential that you do so, but that might be enough to dissuade you from buying this game.

Use of the very small digitised pictures and sporadic speech is rather gimmicky, but it does add flavour. As an adventure game this is dismal, but as a computer version of a book, it's quite nicely done.

It all comes down to whether or not you like Jeffrey Archer and can sympathise with such a bunch of jerks that are the good guys. Despite being offered £2000, I'm afraid I couldn't.

Duncan Evans

Program *Not a Penny More, Not a Penny Less* **Type** Adventure **Price** £19.95 **Machine** Atari ST **Supplier** Domark, 22 Harefield Road, London SW19 3TA.

NEW RELEASES

BBC B

Program *Jet Pac* **Type** Arcade **Price** £1.99 **Supplier** Ricochet, 8–10 Paul Street, London EC2.

Golden oldie zapper, well worth the money but doesn't every BBC owner already have a copy?



Commodore 64/128

Program *Cleanup Service* **Type** Arcade **Price** £1.99 **Supplier** Players, Mercury House, Calleva Park, Aldermaston, Berks RG7 4QW.

Budget platform and ladders with some pretty graphics in places.

Program *Mask* **Type** Arcade **Price** £9.99 (tape), £14.99 (disc) **Supplier** Gremlin Graphics, Alpha House, 10 Carver Street, Sheffield S1 4FS.

Program *Indiana Jones and the Temple of Doom* **Type** Arcade Adventure **Price** £9.95 **Supplier** US Gold, Unit 2–4, Holford Way, Holford, Birmingham B6 7AX.

Another indifferent arcade conversion, but quite a bit better than the ST version anyway.

Program *Timetrax* **Type** Arcade Adventure **Price** £2.99 **Supplier** Bug-Byte, Victory House, Leicester Place, London WC2H 7NB.

Program *Halls of the Things* **Type** Arcade Adventure **Price** £1.99 **Supplier** Firebird, First Floor, 64–76 New Oxford Street, London WC1A.

Literally ancient Spectrum collect and kill extravaganza. Excellent in its day, but that was years ago.

Program *BMX Kidz* **Type** Arcade **Price** £1.99 **Supplier** Firebird, First Floor, 64–76 New Oxford Street, London WC1A 1PS.

IBM PC

Program *Knight Orc* **Type** Adventure **Price** £19.95 **Supplier** Rainbird Software, 74 New Oxford Street, London WC1A 1PS.

Interesting adventure with graphics, if you have the right card. You think you're an orc but by part two the plot changes, and changes ridiculously again in the third.

Palatable enough, but with mediocre graphics, Level 9 are turning into the poor man's Magnetic Scrolls.

Program *Strike* **Type** Simulation **Price** £9.99 **Supplier** Mastertronic, 8–10 Paul Street, London EC2.

Reasonable ten pin bowling simulation but it certainly isn't 10th Frame. Control is keyboard only.

Program *Kobyashi Naru* **Type** Adventure **Price** £9.99 **Supplier** Mastertronic, 8–10 Paul Street, London EC2.

Adventure with icons and graphics which resemble earlier Level 9 product. Psuedo mystical hogwash for plot doesn't help but at least it isn't another pixie quest.



THE enemy COBRA have launched a surprise attack on the island of Botsneda. In the rapid evacuation sensitive documents were left behind (reminiscent of Sunshine Towers) and now a strike force, nay, more an ACTION FORCE, have been dispatched to retrieve those copies of *Spy Catcher*, or whatever.

***Action Force* is the latest film/cartoon/toy/cuddly toy (delete as applicable) licence, and rather surprisingly, as these efforts are usually a let-down, it's quite good. The job then, is to trek across the industrialised surface of the island, reach the installation computer and retrieve the data file from its hard disc unit. Only, you haven't been assigned that job.**

What you have to do is fly the Dragonfly helicopter and cover the A.W.E. Striker jeep while it winds its way across the island. Enemy fighters and planes attempt to shoot you down and destroy the Striker, so you have to fend them off half the time, all the while keeping an eye on the Striker and blasting away obstructions and winching bridging sections to cover rivers (big holes in other words).

The screen scrolls smoothly from side to side as you fly backwards and forwards trying to keep everything under control. The graphics are typical of the C64, big, bright and attractive. The sound effects are disappointingly routine, though, and the music on the title page is somewhat repetitive, but still mildly pleasant for all that.

If your taste in arcade games runs to the frenetic and you want a good dose of heart-stopping excitement, you could do no better than give *Action Force* a try.

Duncan Evans

Program *Action Force* **Type** Arcade **Machine** C64 **Price** £9.95 **Supplier** Virgin Games, 2–4 Portobello Road, London W11 2DX.

MSX

Program *Knight Orc* **Type** Adventure **Price** £14.95 **Supplier** Rainbird Software, 74 New Oxford Street, London WC1A 1PS.

Now available on just about everything, MSX owners feeling neglected by the major software houses will welcome this conversion.

Alas there are no graphics, though knowing what they're like you're not missing very much.

SPECTRUM

Program *Jet Pac* **Type** Arcade **Price** £1.99 **Supplier** Mastertronic, 8–10 Paul Street, London EC2.

Too dated even at this price for todays sophisticated Spectrum owner.

Program *Level 5* **Type** Arcade **Price** £1.99 **Supplier** Mastertronic, 8–10 Paul Street, London EC2.

Scrolling Gauntlet/maze game. Not bad, but nothing new or exciting so you pays your money . . .

Program *Laser Wheel* **Type** Arcade **Price** £2.99 **Supplier** Mastertronic, 8–10 Paul Street, London EC2.

From the author of Trailblazer comes something spectacularly unoriginal. Keep eight screens of asteroids style action clear simultaneously or go shopping instead.

CHARTS

Top Twenty

1	(3)	Joe Blade	Players
2	(4)	Grand Prix Simulator	Code Masters
3	(1)	Renegade	Imagine
4	(5)	Soccer Boss	Alternative
5	(2)	Indiana Jones	US Gold
6	(7)	Pro Ski Simulator	Code Masters
7	(9)	Fruit Machine Simulator	Code Masters
8	(6)	BMX Simulator	Code Masters
9	(11)	International Karate	Endurance
10	(13)	Back To The Future	Firebird
11	(10)	Dizzy	Code Masters
12	(14)	Bubble Bobble	Firebird
13	(17)	Football Manager	Addictive
14	(8)	Paperboy	Elite
15	(15)	Super Robin Hood	Code Masters
16	(21)	ATV Simulator	Code Masters
17	(38)	Barbarian	Palace
18	(16)	World Class Leaderboard	Access-US Gold
19	(23)	Uchi-Mata	Alternative
20	(12)	Arcade Classics	Firebird

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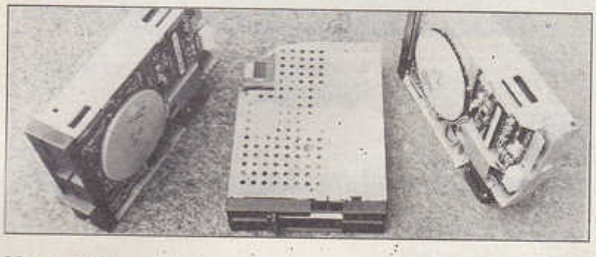
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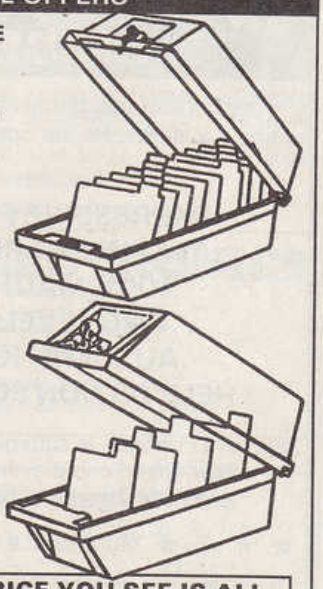
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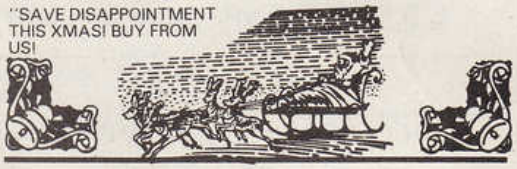
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No defence of the realms

After all this time the Amiga vs. ST debate still rumbles on. Sometimes someone says something new or interesting but such items are few and far between.

The arguments seem to be that the ST is cheaper and has more software in this country, while the Amiga is the better machine whose software scene is about two to six months behind the ST's, but can do things with its current software which ST owners can only dream about.

It seems to me that the most important thing about any computer is whether the owners are happy with it, and what it can do. If not, they get out of computing or buy a new machine (if they can afford to).

With all the sniping between both ST and Amiga owners there would appear to be a number of users on both sides who are having doubts about their choice of machine.

The argument will in the end hurt both machines. Someone reading through the computer press could become quite confused over which machine to buy, and may instead decide to play "safe" by buying an Amstrad or other 8-bit machine.

The future lies with both machines, and the success of both machines is important for the survival of the home computer industry and the software industry. 16/32 bits is the next level in computing and the hardware/software suppliers who don't recognise it shortly will be left behind to fade away.

The cost is less important with such machines because as the 8-bit owners grow up, they get jobs and have more money to spend on their hobby than when they were at school. They are looking for something more from their computers which 8-bit machines just cannot give them.

Some software houses have been quick to spot the advantages in releasing a game on either machine. If they produce a brilliant game on, say the Amiga (eg *Defender of the Crown* or the *Fairy Tale Adventure)* the game tends to get a lot of publicity (lots of good colour photographs and rave reviews). Then they release versions for other machines. People already know the game and have been impressed.

If *Defender* had been released first on the C64, it would have been slated for being just a re-working of the old strategy game *Kingdom*.

Yet some companies are quite happy to port over games from 8-bit machines to the 16-bits without enhancing them. Such an attitude is very short sighted.

The 16-bit machines will be around for a long time, and their owners will not forget having been ripped off. So they will stick with the software houses they know can produce the goods for their machines.

By the way, does anyone know why the Amiga version of *Goldrunner* contains instructions on how to load it on an ST????

Andrew P. Fullen

THE SEARCH CONTINUES . . . since we launched our quest for new puzzle ideas last month, the response from you so far has been – well, underwhelming, to say the least.

There is still £20 waiting for the best idea submitted by a reader, and accepted as the new *Popular Computing Weekly* puzzle, and the closing date for the receipt of entries is November 7, so there's not long to go before your time's up.

Of course, having put it out to you, the readers, it may be that you'd prefer to retain the original puzzle. That is a possibility we are considering, and may well implement.

So it's up to you. You have until November 7th to tell us what you think. So either let us have your ideas for a new kind of puzzle – or let us know if you'd like to see the return of the original puzzle. Either way, we will do our best to arrange what you the readers would most want.

Please let us have your views either way. Write – by November 7th – to: Puzzle Ideas, Popular Computing Weekly, 3rd Floor, Greencoat House, Francis Street, London SW1P 1DG.

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Screen shot from Amstrad version.

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